

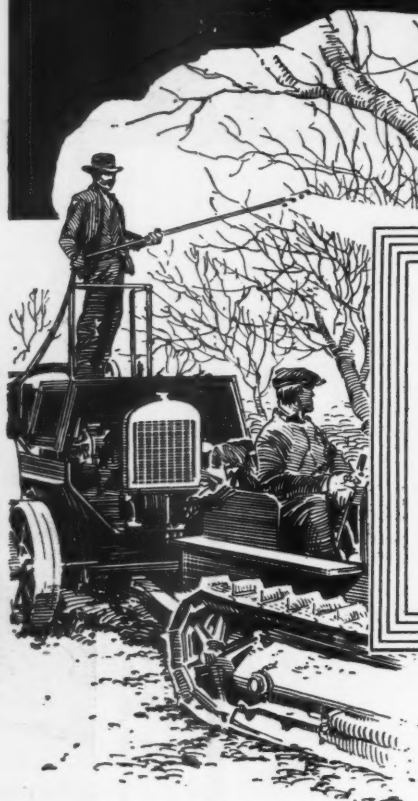


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1935
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Please send me a copy of the new edition of "Cash Crops."

NAME and
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1935... A STILL BIGGER YEAR FOR "ASTRINGENT" LEAD!

AMERICAN FRUIT GROWER

(Title Registered in U.S. Patent Office)

VOLUME 55

No. 1

JANUARY, 1935

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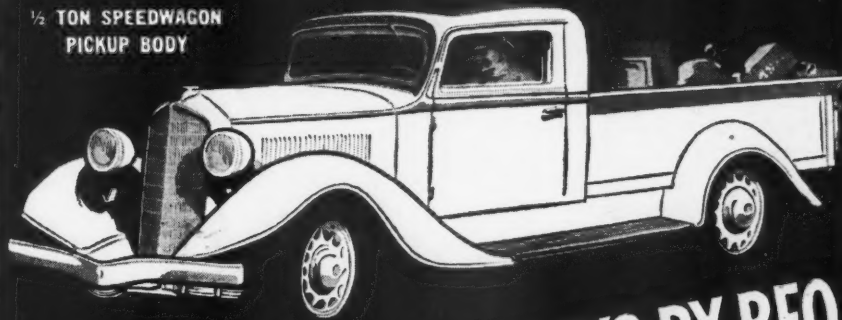
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January, 1935

TRUCK NEWS!

1/2 TON SPEEDWAGON
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AMERICAN FRUIT GROWER

Page 3

ARMORED AGAINST EVERY ENEMY

BEAN

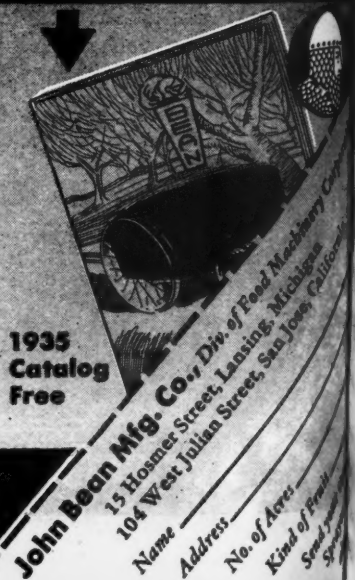


THIS 'Full-Armored' BEAN Royal for 1935 is *all steel* from end to end, including a leak-less all steel tank proofed against corrosion, • Lighter, shorter, narrower, with lower center of gravity. *Armored* against wear and tear... *Armored* against trouble and expense... *Armored* against every enemy that cuts your profits, slows up operation, wastes

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STRIVE AND THRIVE IN 1935

TIME, the omnipresent auditor, has balanced and closed the books for 1934. A new page lies before us, a New Year ahead of us. What will it bring; what shall the record be?

Before we undertake to forecast the answer, let us briefly look back over the past year. A review of the events of 1934 which critically affect fruit growers is apt, however, to prove confusing. The vagaries of climate and weather, the volcanic upheaval of man's mass fight for economic liberty, the pressure of national and international problems, as well as other factors, have so overshadowed the many personal problems of the grower that he has been compelled to realize that success for him is more than the comparatively simple matter of raising good fruit. These many outside factors have become just as important to the grower as his choice of orchard machinery, spray materials and types of orchard practices. Is it any wonder, then, that at times during this past year, it has been hard for us to see the forest because of the many trees?

And yet, as we look back over the year, it seems incredible that so much could have been changed without some of the changes being for the better. Indisputably, we have made progress along fundamental lines. Ideas which a year ago, or a hundred years ago, seemed eternal, now obviously have outlived their usefulness. In other times of disturbance, men could hope to go back to the conditions of the good old days. After 1929, we were almost childlike in our desire for such refuge. But not now. We, who have come through the fire of the past five years, have been tempered by it. We know that we must go forward because we can't go back.

And with a new year facing us, who is more fortunately situated for forging ahead than the fruit grower? His capital investment is of a more permanent nature than that of many business men. Federal and state experiment stations, financed by taxes partly paid for by the grower's customers, aid him in many ways by making his problems their problems and evolving solutions. His product today is better appreciated and more

desired than ever before by the consuming public.

In fact, looking ahead to 1935—and beyond—the long-time outlook for the fruit grower was never brighter. It is true, due to planting booms that have come and gone, that some fruits are produced in excess and that some markets are glutted at harvest time. But cold storage plants on the farm offer a solution to the grower enterprising enough to thus regulate the sale and distribution of his crop. Lack of rain at the proper seasons has been a serious problem in many sections of the country in recent years, particularly the last one. Yet the grower with foresight seeks and finds the answer to this problem in irrigation, which not only insures him against lack of rain, but assures him of higher average crop yields.

Nature's lack of cooperation in the matter of moisture has resulted in three consecutive years of below-average production. This situation was made all the more serious by the unprecedented low temperatures of last winter. But this, too, seems likely to result in a change for the better. Already there is a strong tendency to start what may become the first apple planting boom in over 20 years. Not only will sales of nursery stock be stimulated, perhaps, to the point of a "sell-out," but the grower with initiative enough to replace dead or dying trees with new ones, will benefit from renovated and rejuvenated orchards in the years to come.

We don't quite know exactly how we shall emerge from 1935, nor how we shall arrange our future. Nobody knows certainly and definitely. We do know, however, that the world is slowly recovering from the ills brought about by economic chaos. We also know that our own nation is now sitting up and taking nourishment. In fact, there is more than one indication that the depression is just about over; that the fever of fear has run its course, and that the pulse beat of our people is normal, or nearly normal, again.

In the face of these encouraging signs, there is only one thing for the enterprising fruit grower to do in 1935, and that is—**STRIVE AND THRIVE.**

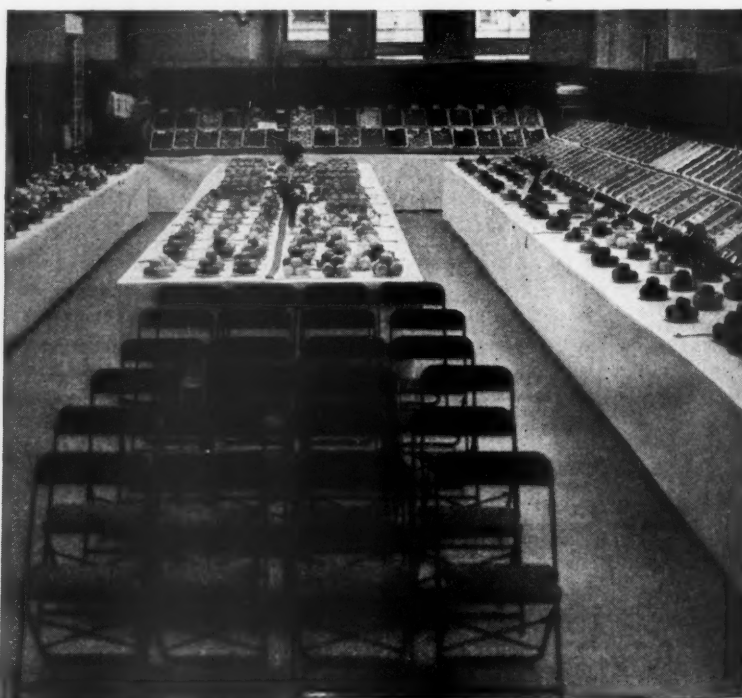
A PICTORIAL REVIEW OF THE FRUIT WORLD



A tree on which they keep books. The photograph shows one of the Golden Delicious trees in the orchard of L. L. Anderson, President of the Golden Delicious Apple Growers' Association. There are 122 trees in this one block, and they earned \$2400 last year—about \$960 per acre—which is certainly living up to their golden name.

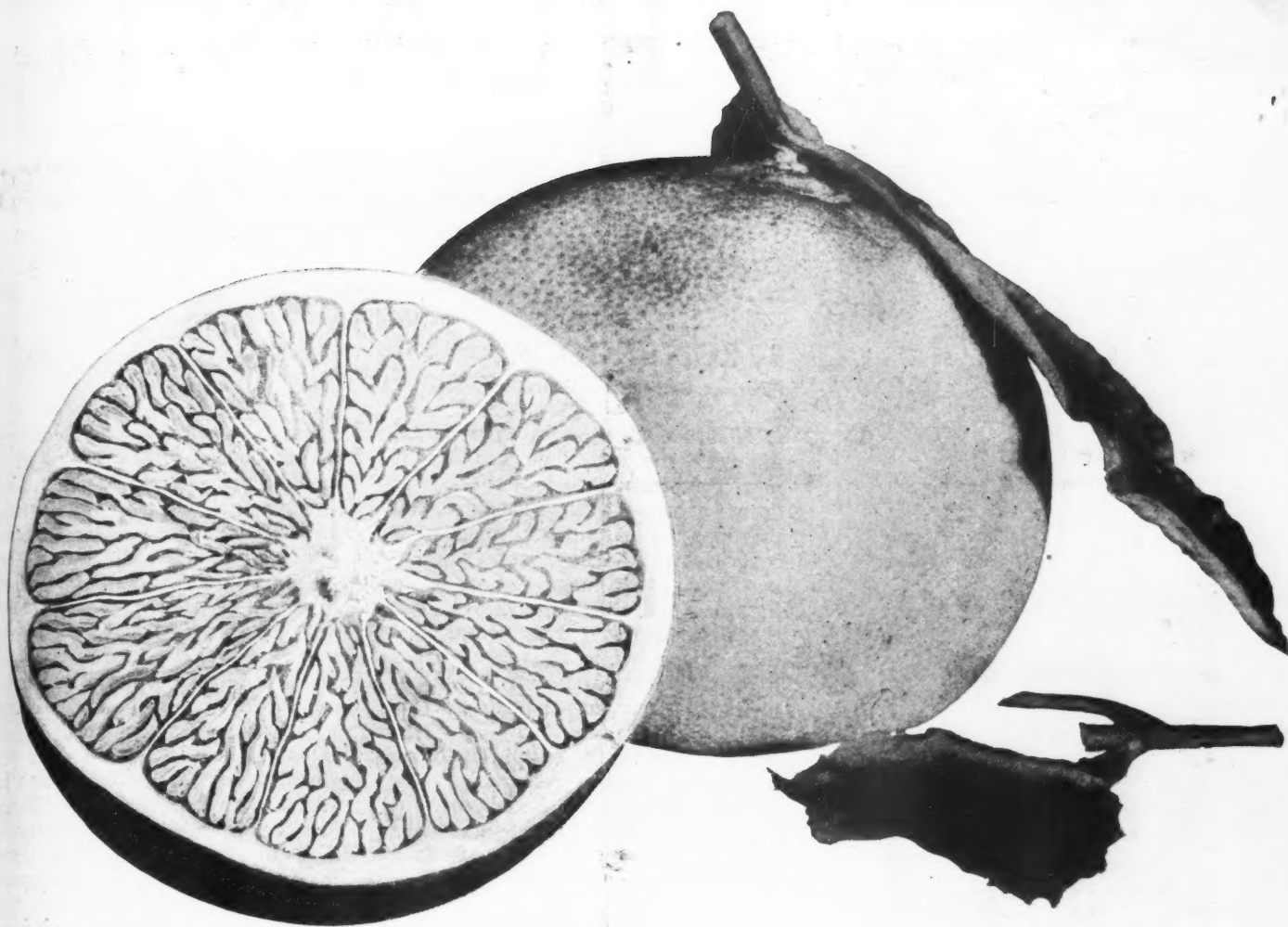


Apple harvest on railway right-of-way. The German State Railways encourage the planting of fruit trees, particularly apple, along the track embankments. The railway employees do the cultivating and harvesting.



An Apple and Potato Show in a big city department store. The recent Cuyahoga County Apple and Potato Show was held—of all places—in the Higbee Company Store, one of Cleveland's largest and busiest department stores.

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NEW RUBY GRAPEFRUIT

Amazes Citrus World

By F. T. BINGHAM

Edinburg College, Edinburg, Texas

BY a single stroke of wisdom and good fortune, coupled with a beneficent manifestation of nature, a Texas grower is about to offer to the citrus industry, a brand new variety of grapefruit which beckons to become of appreciable economic importance.

The beneficent manifestation of nature, as above mentioned, is what is known in agricultural parlance as a "bud sport." In technical language it is designated as a "mutant," or "bud mutation."

The fortunate and observant grower is A. E. Henninger, a well-known citrus grower, living near McAllen,

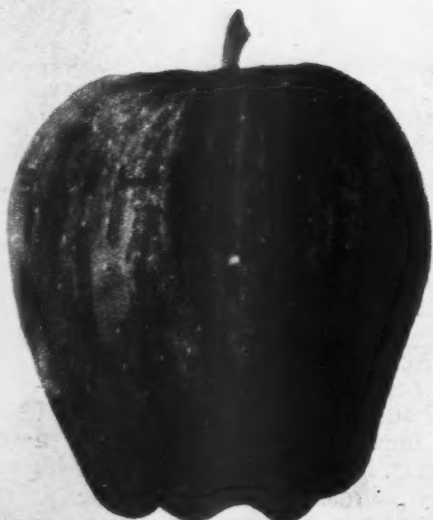
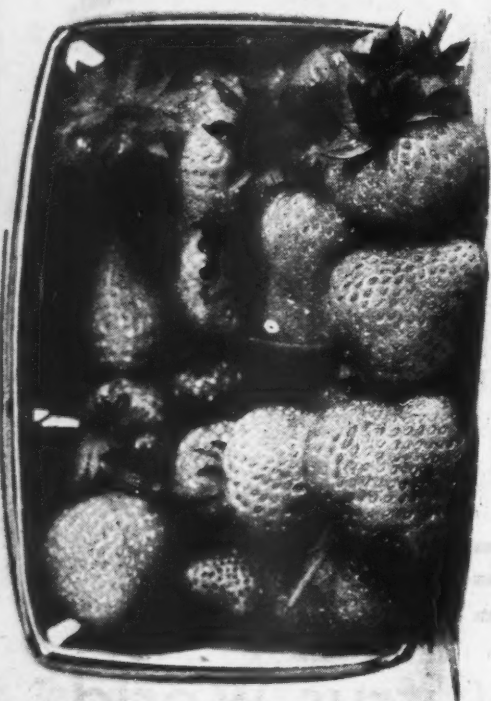
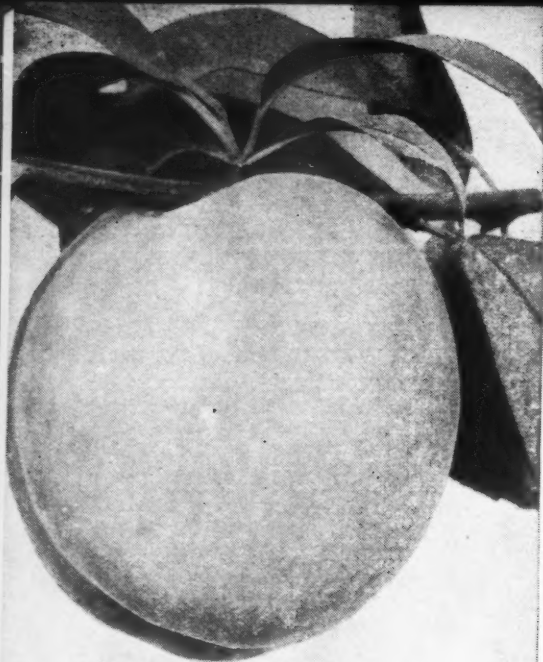
Texas, and in the heart of the citrus belt.

Bud mutations, especially when obviously physically different from their parental forms, have long been known. Many of these are the progenitors of a number of our present day citrus and other fruit varieties. Hugo de Vries, a Dutch botanist of the last century, was perhaps the first to direct attention to suddenly appearing new forms of both plants and animals. He even set up a theory of evolution by mutation in which he applied Darwin's principle of natural selection to these mutations as the general method of origin of species.

As to the cause of these mutations, the writer will not attempt to say. This mooted question can be left to the more profound mind. Suffice to say, however, mutations do occur—and especially so in citrus. And, moreover, when these mutations are detected and carefully observed, they can become important characters in a horticultural history. Hence, this story.

In order to obtain a proper sequence in this article which is ostensibly designed to relate the finding of an important grapefruit mutation in Texas, it would be well to begin with

(Continued on page 27)



PLANT

HOW UNCLE SAM PROTECTS

By **ROBERT COOK**

American Genetic Association

SINCE 1790 inventors of new and improved mechanical devices and of new combinations of matter have been accorded the constitutional privilege of protecting their discoveries by a 17-year monopoly covering the rights to make, use and vend their new and useful discoveries. The theory of patents is that in return for this monopoly the inventor makes known the technique of manufacturing his new device or new combination of matter. Simple as this seems in practice, it has in the course of years resulted in tremendous complexity, and as the field of human ingenuity has been more intensively tilled it has been the basis of much legal controversy to determine who is an inventor and who is not. Volumes have been written on this subject both by the courts of the United States and by authors who have undertaken to enlighten inventors regarding the Patent Law of the land.

In 1930 a most interesting addition was made to the patent laws of the United States which privileged anyone "who has invented or discovered and asexually reproduced any distinct and new variety of plant other than a tuber propagated plant," to obtain a patent upon it just as patents are obtained on other patentable ideas and objects. This represents the first attempt to grant the right of patent protection to the originators of new plant varieties that has been made anywhere in the world.

From the point of view of the actual originator of new plants, what is this law, how does it benefit him, and if he decides to get a patent how does he go about it?

Patents are granted by the Commissioner of Patents who is an official of the Department of Commerce of the United States Government. During the years that patents have

been issued a very elaborate technique has been developed in granting them. When a person wishes to get a patent he makes application to the Commissioner of Patents. This application contains a description of the new invention, outlining the points which differentiate it from preceding inventions, and an oath that to the best of the knowledge and belief of the applicant the invention is new and has not been used previously in the United States or in other countries.

This application, made in a prescribed form, is accompanied by a fee to defray the expenses of the Patent Office in making a search of previous patents to discover whether the device (or plant) is new. The appropriate branch of the Patent Office then searches the records and if no infringing devices are found a patent is granted. In spite of this preliminary search by the Patent Office, the granting of a patent does not guarantee that the device is new or that the patent is of any value as protection against infringement. That is decided by the Courts. If prior invention, etc., can be proved in court, a patent granted by the U. S. Patent Office is valueless, and the inventor has no recourse against the government for any losses he may incur.

Any person who has invented a new and useful object of the classes coming under the patent laws may make application for a patent. In the event of the inventor's death, application can be made by an executor or an administrator. The patentee himself has the right to prepare and argue his own case before the Patent Office. He may also employ a representative to do this for him—such person being a qualified and registered attorney who makes a specialty of patent work and who has passed an examination proving his eligibility for this work.

The Patent Office maintains a list of registered patent attorneys, which may be referred to by the public. Commercial legal directories also list patent attorneys. In the prosecution

Among some of the patented fruits are: Top illustration, White Hale Peach, Plant Patent 31; center, Jupiter Strawberry, Plant Patent 46; bottom, Shotwell Delicious Apple, Plant Patent 90.

AMERICAN FRUIT GROWER

January, 1935

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January, 1935

PATENTS

NEW PLANT VARIETIES

PLANT PATENT INFORMATION SERVICE

AMERICAN FRUIT GROWER welcomes inquiries from fruit growers about the new U.S. Plant Patent Laws. If you have a recently discovered variety which you believe is patentable, write to **AMERICAN FRUIT GROWER** and we will advise you in the matter of the proper procedure.

of Plant Patents, a new class of patent attorneys called "Plant Patent Agents" has been set up by the Patent Office. These need not necessarily be qualified attorneys but are considered to be competent to prosecute plant patents before the Patent Office. The fact that they are not necessarily qualified attorneys may be a disadvantage from the point of view of the patentee, because the plant patent amendment is a part of the old patent law, and many previous decisions of the courts may apply to plant patents. Ignorance in regard to them may result in serious omissions in drawing up the patent.

The patentee, or his agent, the patent attorney, prepares an application which sets forth in detail the distinctive features of the new form and states why it is of a useful nature—as patents are assumed to be granted only for *new* and *useful* improvements in existing methods and forms. The preparation of the application is of great importance because the wording of the patent is a crucial matter should the patent be placed in litigation before the courts of the United States. No patent is any stronger than the wording of the description and of the claims which circumscribe the particular points that constitute the new and patentable development. The most valuable invention in the world can be stripped of patent protection by ignorant or slovenly wording of the claims. Therefore, the choice of an attorney who knows the details of patent prac-

tice and the quirks of patent law (and *who knows plants!*) is a matter of paramount importance.

From the botanical point of view it would seem that in the last analysis it is the plant and not the wording of the claims that is important, but this is by no means necessarily so. While there is a real distinction between plant patents and mechanical patents in this respect, it is not certain that this distinction will be recognized by the Courts. It therefore behooves the inventor or discoverer of a new variety of plant, if he is not himself conversant with patent law, to choose a patent attorney who is thoroughly competent to handle his case.

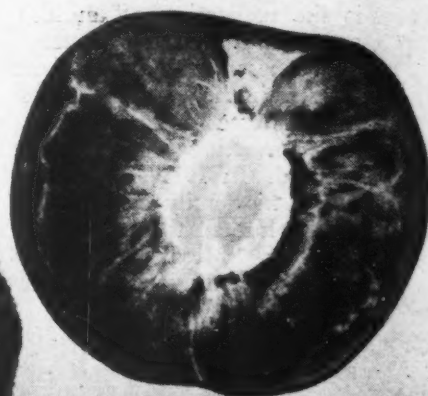
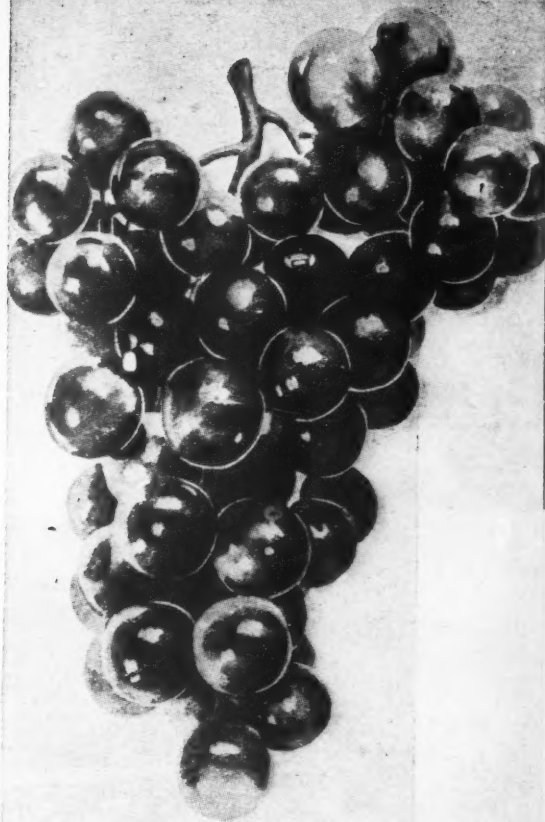
The application for a plant patent is made up of six parts: (1) a petition to the Commissioner of Patents in prescribed form, (2) a description of the plant and its history, called the "specification," (3) a drawing (or drawings) illustrating the invention (in plant patents this may be required in color), (4) the claim or claims which are supposed to circumscribe and detail the new parts of the invention, (5) the oath, stating in prescribed form that the plant is new, and that it has been asexually propagated, and (6) a fee of \$30 to cover the cost of the search.

The description should be clear, concise, and exact. In distinguishing between varieties of plants by purely verbal description it is the opinion of the author that it will be extremely difficult to prepare specifications of new varieties of plants that are adequate. In preparing a description the best possible botanical usage should be followed and it is desirable, though not at present compulsory, that the ancestry of the plant and the whereabouts of type specimens of the new

(Continued on page 30)

Top illustration, Stark's Early Giant Black Grape, Plant Patent 42; center, Brake Pecan, Plant Patent 47; bottom, Mariposa Plum, Plant Patent 111.

AMERICAN FRUIT GROWER





Just a few baskets of apples awaiting shipment at the Mesa Orchard, Idaho. Below, interior view of one of the new storage cellars at the Mesa Orchard showing boxes of fruit stacked high.

NORTHWEST'S

LARGEST

APPLE
ORCHARD

By IDA M. DURNIN

THE largest apple orchard in the Northwest under one management is the claim of the operators of the Mesa orchard located in Idaho 50 miles northeast of Weiser on the foothills above the Weiser river, and intersected by the North and South highway.

This modern, scientific method of growing, storage and transportation of the big "M" brand apples, that are now shipped to all parts of the world, is the realization of an idea sponsored by a New York man, D. W. Van Hoesen, who in 1910 became interested in the possibilities of reclaiming this tract of raw sagebrush land and converting it into a commercial orchard. In 1919, Mr. Van Hoesen moved his family from New York to Idaho, located them at what is now known as "Mesa" in the heart of the Mesa orchard district, and started the now famous Mesa orchard.

(Continued on page 24)



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By GEOR
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The strawberry in wide spaced beds in the Watsonville district of California where the highest yields in the world are obtained. Four crops of berries were often taken from a field until the "yellows" virus disease and cyclamen mite became serious and reduced the average number of crops to one or two.



Factors Affecting ROTATION CROP for STRAWBERRIES

By **GEORGE M. DARROW**
U. S. Department of Agriculture

THE necessity for crop rotations has been known and crop rotation practiced for many centuries. The reasons for some crop successions have been evident, but for many, no reason except experience has been known. Research in the past few years is helping us to understand why they are necessary, which ones are best, and which ones to avoid. Rotation has, in general, been practiced because any one crop grown year after year tends to exhaust the fertility of the soil, taking out more of one than of other fertilizer elements.

With the strawberry this, too, may be a reason for rotation. More likely, however, insect and disease populations may have been built up in the strawberry field until the strawberry crop does not pay and some other crop must be grown. Often as the strawberry plant beds become two, three, or four years old the crowns have grown so high above the ground that new main roots cannot form, the plants become weak, and the berries small. Then a new planting must be set. If insects and diseases do not make it necessary to change the site to another field, the tilth of the soil, danger of soil erosion, the humus content of the soil, or the season may be a factor which makes a rotation desirable.

Though much is still unknown, specific reasons can now be given for many rotations for strawberries, and an understanding of these reasons as they apply to different regions may

Marshall strawberries under the hill system in Oregon being weakened and killed out by *Rhizoctonia* root rot. Plants in the background and that to the right are relatively free.

save growers hundreds of thousands of dollars annually. Many crop rotations are very local while others are widely practiced. Reasons for this differ in different parts of the United States. The crops that can or should alternate with the strawberry rotation are not the same for a field in Mary-

(Continued on page 29)



"GROW BRITISH"

INCLUDES NATIONAL TRADEMARK

Part 3

By F. S. HOWLETT
Ohio Experiment Station

OBVIOUSLY the new attitude of the British government toward agriculture is affecting marketing as well as production. Several important developments along this line are of interest to the American grower of fruit. The first of these is the "National Mark" system of standardization, grading and labeling; the second is the "Buy British" campaign, and the third is the "Import Duties Act."

Naturally the competition of home grown fruit with the foreign product is an important factor in the intensive campaign to increase home produc-

tion. The home grower has had to compete with heavy supplies of apples, plums and pears from abroad. These imports have secured their hold upon the market, in part at least, by standardized grading, packing and labeling. For many years now the principal organizations of wholesalers and retailers have complained regarding the irregular grading and unsatisfactory packing of the various English fruits. They have recommended in particular that a declaration of weight should be required on every container of the various fruits marketed.

In consequence, the government established in 1931 the system known as the "National Mark," which serves at least to equalize the weapons of trade warfare. The legislation establishing the National Mark prescribes grade designations for certain kinds of agricultural produce, including the various fruits, and defines the quality indicated by such designations. The accompanying illustration shows a chart used by the government in encouraging the use of the National Mark.

The use of the standard grade and package designated in the provision enables the home producer to put a standardized and dependable product on the market under a guarantee of home origin as well as of weight and quality. At the same time he "facilitates the preferential buying of the home grown product." The publicity which has been given the National Mark during the last few years has focused the attention of the public upon home produce, and the National Mark has now attained considerable value as an advertising agent.

On the Covent Garden Market I observed Cox Orange apples packed according to the National Mark in one-half boxes. In spite of the grading system these apples were hardly comparable in appearance to the American and Canadian Jonathan, yet undoubtedly the establishment of grades and standards will, as it becomes more effective, have an important influence in raising the appearance, quality and sales of the English fruit.

The "preferential buying of the home grown product" has also been aided by the "Buy British" campaign. This movement includes the produce of all the British dominions and territories. The exhortation, "Buy Empire, both at Home and Abroad," is constantly before the eyes of the English public, one which is singularly docile in following the national recommendations. In actual practice this "Buy British" policy seems to extend all the way from the marketing of fruit to the street-corner sale of a box of two penny matches. Placards urging the consumers to "Buy British" are placed directly above the fruit so as to attract the buyer's attention. In addition, Canadian fruit is conspicuously labeled, "Empire Grown," while that from the United States is labeled, "Produce of U.S.A."

Naturally the dominions are quick to take advantage of this situation. Canadian apples are often enclosed

(Continued on page 22)



**EMPIRE
BUYING** **BEGINS
AT HOME**

STANDARDISATION

Standardisation is the basis of successful modern business.

- Standardisation of efficient methods of fruit production secures uniformity of quality and minimises fluctuations in volume.
- Standardisation of grades, packs and packages promotes mutual confidence and understanding and lubricates the machinery of trade.
- Standardisation accelerates distribution, provides a wider market, and contributes to better and steadier prices.

Standardisation is the basis of the National Mark Scheme.

Join the National Mark Scheme and help to put the home-grown fruit trade on a standardised basis.

One of many posters put out by the British Ministry of Agriculture, which are displayed at all meetings of fruit growers.

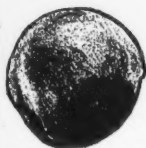
WOULD YOU BELIEVE

"BLACK LEAF 40" Has so many uses

PROTECTS AGAINST
GREEN AFBY APHIS,
LEAF HOPPER, RED BUG,
WOOLY APHIS, BUD MOTH,
AND CODLING MOTH.



PROTECTS PEARS
AGAINST PSYLLA
FALSE TARNISHED
PLANT BUGS, THRIPS,
SLUGS



PROTECTS PEACHES
AGAINST APHIS



PROTECTS VEGETABLES
AGAINST APHIS, SQUASH
VINEBORER, THRIPS.



PROTECTS PLUMS AND
CHERRIES AGAINST APHIS



PROTECTS TREES, SHRUBS,
FLOWERS, AGAINST APHIS,
AND OTHER INSECTS; AND
FROM "STAINING" BY DOGS



PROTECTS GRAPES
AGAINST LEAF HOPPERS



PROTECTS CURRANTS AND
GOOSEBERRIES AGAINST
APHIS, CURRANT WORM,
FOUR LINED LEAF BUG



KILLS
POULTRY LICE AND
FEATHER MITES

If you have a garden, an orchard, a farm,
a flock of sheep, a herd of cattle, a flock
of poultry, "Black Leaf 40" can serve you.
Be sure you get genuine "Black Leaf 40"
in original, full strength, sealed packages.

"Black Leaf 40"

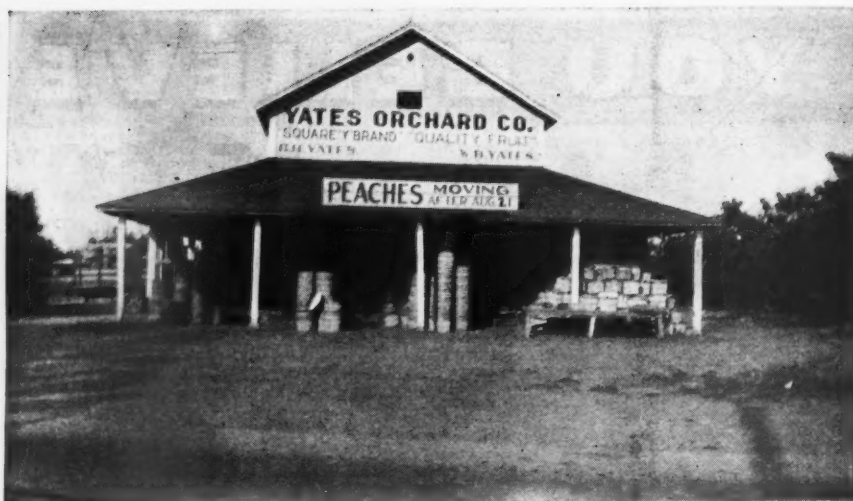
EXAMINE THIS RECORD

"Black Leaf 40," the pioneer Nicotine Sulphate, containing 40 per cent nicotine, was introduced 25 years ago. "Black Leaf 40" quickly won the market. Government and State Experiment Stations subjected it actually to thousands of tests in laboratory and field experiments. It solved the problem of finding a safe, effective and reliable economic control for many pests

and parasites which attack plant life, animals and poultry.

Literally, every major use for Nicotine Sulphate, whether for spraying and dusting flowers, vegetables and fruits; for drenching sheep; for poultry nicotine pellets; for the original "roost-paint" method of delousing poultry, is based upon experiments in which "Black Leaf 40" exclusively was employed.

(3554)



This packing shed serves as a successful roadside market.

PEACH CROP INSURANCE

By KENNETH STALCUP

TEN years without a peach crop failure! That is the experience of Bert Yates, Knox county, Indiana. Such a record can't be all luck in a region where the average orchard misses every other year. Last season Mr. Yates produced a 90 per cent crop on his 350 acres, when a March freeze killed most of the fruit in the entire country. His escape might have been due to one of those peculiarities of late cold snaps which are occasionally more severe in some localities than others. But the regularity with which his trees bear probably can be credited to his methods of culture.

"A healthy tree is fundamental," said Mr. Yates as he discussed the various requirements for producing peaches. "And tree health is dependent not alone on spraying and pruning, disease and insect control. It may be affected by the location of the orchard. I prefer good land with clay type subsoil and good water drainage. Air drainage for peaches is more important than for almost any fruit because of the early blooming and the customary late frosts or freezes. Cold air always settles so that an orchard on the level or at the foot of a slope may be affected by many frosts that won't injure buds or blossoms on higher ground."

Peaches are affected by late winter suns, according to Mr. Yates. If the weather is unseasonably warm, trees

may become active and swell their buds. In such condition the buds will not stand much cold. A location where the trees will be delayed in starting spring growth is desirable.

Mr. Yates thinks that peaches need a complete fertilizer. He uses a mixture in which the nitrogen is derived half from nitrate of soda and half from sulphate of ammonia. The phosphoric acid comes from 20 per cent superphosphate and the potash from muriate of potash. He makes up a fertilizer which analyzes approximately six per cent ammonia, eight per cent phosphoric acid and 10 per cent potash. He gives the peach trees from six to 12 pounds according to size.

Within 15 to 20 days after the first spring working and at similar periods thereafter until harvest, the soil should be worked with a springtooth harrow. All cultivating operations cease at harvest. After harvest all dead wood, broken limbs and decayed fruit is removed and destroyed. As a sanitary precaution, the orchard land is then disked one way and spring-toothed the other. Then every tree is carefully examined for shot-hole borers, for diseases and skinned places which are painted with creosote.

The spraying schedule for controlling tree and fruit insects and diseases is adhered to rigidly. Two dormant sprays are given. Winter strength lime-sulphur is used to control peach leaf curl and certain scales.

The second dormant spray is oil emulsion for San Jose scale. The petal fall application is a dust made up in the proportions of 80 pounds sulphur, 10 pounds lime and 10 pounds arsenate of lead. Dust is substituted for wet sprays whenever possible because it is less expensive, easier to apply and permits coverage of the orchard in much less time.

Two weeks later, in the shuck stage, the same application of dust is repeated. Two weeks after the shuck stage, a spray composed of self-boiled lime-sulphur, in the proportions of eight pounds lime and eight pounds sulphur, with four pounds zinc sulphate, to 50 gallons of water is applied. This wet spray is applied in quantities to coat both leaves and peaches thoroughly.

Pruning is undertaken as soon as the trees become dormant in the fall. The branches are cut back rather severely to promote strong wood.

Mr. Yates' packing shed is equipped with a fruit washer, which is operated by an electric motor. It is one of the greatest labor saving devices on the market. A fruit grader is installed in the shed; it saves many dollars annually on labor costs. Lifting or lowering fruit from the second floor of the shed requires a large amount of labor unless elevators are installed as in the Yates Orchard. A large number of baskets of fruit may be handled easily in a short time if elevators are employed. Mr. Yates uses a three horsepower motor to operate the elevator.

The majority of Mr. Yates' peaches are marketed at the central packing shed, located on paved highway 41, which also serves as a roadside market. This practice saves shipping charges which is a large item in selling any commodity. During the heavy peach season, usually around the middle of August, hundreds of trucks from all over the Middle West come to the orchard to buy fruit. Mr. Yates also sells great quantities of produce to the numerous tourists traveling through the State.

Mr. Yates has several well defined ideas as to how a successful fruit market should be handled. The produce should be carefully graded as to size and quality, and arranged in neat and attractive displays. As peaches deteriorate quickly, they should be moved as rapidly as possible. Rubbish, causing bad odors and unsightly appearance, should never be allowed to accumulate. The chief reason the motorist goes to the country to purchase fruit is so that he may procure it fresh. Nothing disgusts a prospective customer more than to see a quantity of overripe fruit surrounded by flies and gnats.

HIGH PRESSURE

WITH LONG LIFE AND LOW UP-KEEP . . .

THE PERFECT PLUNGER

Look up the record of Hardie sprayers in any fruit or vegetable growing section. You will see plenty of old Hardies still going strong. Measured by years of use or gallons pumped the Hardie is the cheapest and best sprayer any grower can buy today.

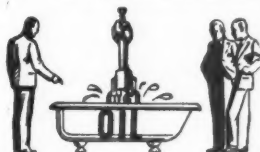
Every detail of engineering makes for durability and efficiency. Wear-resisting materials used in construction contribute to stamina and long life. Complete lubrication is an outstanding exclusive factor, eliminating wear and tear.

The exclusive Hardie oil filtering system is comparable to the oil filter on your car and just as necessary. In an emergency you can even take oil that is discarded from an automobile crankcase and run your Hardie with it because clean oil only can reach the Hardie bearing.

Any spray pump is as good as its plunger—that's why we stress the design and construction of the Hardie plunger which remains today the outstanding achievement of the sprayer industry.

The plunger should be lubricated. We deem this of paramount importance. Hardie alone lubricates the plunger—it literally runs in a bath of oil, saving

power and reducing cup wear. Cup replacement is a nuisance so we developed an exclusive composition cup that runs for years without replacement and that doesn't leak a drop. The cylinder is heavy steel tubing porcelain lined—the best and smoothest job that can be done—as accurate as a gun barrel. In all other details the Hardie plunger is made to automobile standards of material and accuracy in workmanship. The entire absence of packing and extreme ease of disassembly are still more advantages. And every Hardie plunger in every Hardie spray pump, large and small, is identical in design and construction.



Write for catalog showing 30 sizes and styles of stationary and portable, horse and tractor drawn sprayers for orchard, grove and field.

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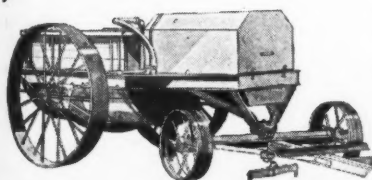
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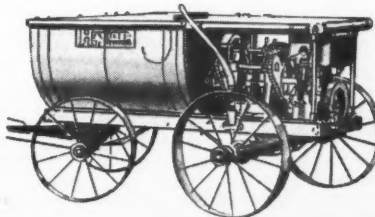
BROCKPORT, N. Y.

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Practically all Hardie orchard sprayers are now available in cut-under, short-turn type as well as in straight frame outfits. This is the lightest, strongest and in every way the best cut-under sprayer in the market. Fully dustproofed.



The Hardie Senior Duplex is the most popular Hardie sprayer ever built for the average grower. Operating and upkeep costs are amazingly low. It has all the refinements found in the larger outfits and is very attractively priced. Sold with or without truck.

HARDIE DEPENDABLE SPRAYERS

AMERICAN POMOLOGY

A Page Conducted in the Interests of the
American Pomological Society

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News of the 50th A.P.S. Convention

MICHIGAN fruit growers not only grow fruit in a big way, but also stage a convention in a big way. The 50th convention of the American Pomological Society was held in joint session with the Michigan State Horticultural Society at Grand Rapids, Mich., December 4-6, in the new Civic Auditorium. Attendance at a number of the meetings was close to 1,000 persons. Fruit growers, supply men and professional horticulturists from Virginia, Connecticut, New York, Ohio, Illinois, Wisconsin, Iowa, Missouri and Canada, were in attendance.

A large display of Michigan apples was shown. Supply companies had excellent exhibits giving the latest information on and improvements in spray materials, spray machines, washers, fertilizers, packages, pruning equipment, nursery supplies, etc. These exhibits were in themselves of distinct educational value and were manned by men well qualified to advise fruit growers.

Spray Residues

The spray residue question when brought up at a fruit growers' meeting generally leads to some lively discussion. One of the most interesting A.P.S. sessions was the symposium on lead residues. President Pickett presided and presented the subject, showing how the residue situation had evolved up to the present time. After nearly three hours of discussion, President Pickett was instructed to appoint a committee to draw up a set of resolutions relative to the question of spray residues.

At the present time, the tolerance on lead residue is .019 grains per pound of fruit. In the absence of any proof that lead residues have menaced the public health in any way, it was the consensus of opinion at this meeting that the tolerance should be increased to .025. If placed at this point, experiments have clearly shown that fruit growers could wash their fruit with reasonable certainty of being safely under the tolerance. The present tolerance of .019 is difficult of attainment and has caused much loss to fruit growers. To further reduce the tolerance would, in the opinion of fruit growers, be ruinous to the fruit industry because of the uncertainties involved in washing successfully. At the present time satisfactory substitutes for lead arsenate, which are cheap enough and which satisfactorily control codling moth, have not been found.

Fruit growers stressed the great need for federal cooperation in establishing an analytical service in large producing centers, so that accredited shipments of fruit

would be accepted at terminal markets without danger of re-examination and possible seizure. At present no such service is available to middle western growers, which results in much uncertainty and many "sleepless nights" for fruit growers who must ship to out-of-state markets.

The special committee appointed by President Pickett wrote the following set of resolutions, which were read and adopted by the A.P.S.:

Spray Residue Resolutions

We, the members of the American Pomological Society, in annual meeting assembled at which there were present 90 representative fruit growers from Michigan, Ohio, Illinois, Wisconsin, New York, Virginia, Indiana, Iowa and Missouri, do unanimously resolve as follows:

1. That we are in favor of marketing only apples above reproach from the standpoint of public health.

2. We recommend that the U. S. Department of Agriculture carry on research to determine safe tolerance for lead and other spray residue on fruits.

3. We recognize the need for close co-operation between the Federal Government, State authorities and growers. To this end we request that the U. S. Department of Agriculture work out with each of the fruit growing states an acceptable working plan for certification of fruit to meet the required tolerances.

4. We recommend the establishment of analytical laboratories by the U. S. Department of Agriculture at strategic production points to standardize the analytical service. The economic welfare of the fruit industry demands that growers have an improved means of knowing before shipping that their fruit will not be condemned thereafter.

5. We deem it necessary that all states co-operate and enforce the approved regulations for tolerances.

6. We recommend that the U. S. Department of Agriculture continue diligent research in an effort to discover satisfactory spray materials not objectional to public health.

Pending the development of more satisfactory spray materials we urge that the tolerance on lead be placed at .025 gr. per pound of fruit because there is no reasonable evidence that this amount is injurious to public health, and because experience in washing indicates that this tolerance can be attained with reasonable certainty.

Presented by the special committee on resolutions of the American Pomological Society this fifth day of November, 1934, at Grand Rapids, Michigan.

H. J. Rahmlow, Madison, Wis.
F. H. Wissler, Mt. Jackson, Va.
John A. Gage, Mt. Vernon, Ill.
George Friday, Coloma, Mich.
F. H. Beach, Columbus, Ohio.

A general set of resolutions was also adopted by the A.P.S. and are as follows:

General Resolutions

We, your Committee on Resolutions, present the following for your consideration:

The 50th Convention of the American Pomological Society, in session December 4-6, 1934, at Grand Rapids, Michigan, does hereby resolve the following:

1. We wish to take this opportunity to express to the Michigan State Horticultural Society our sincere appreciation for the co-operation and hospitality extended to the American Pomological Society in helping to make this the 50th Convention of the American Pomological Society one of unusual interest and value. This

joint program brought together for their mutual benefit, horticultural authorities and fruit growers from many states.

We also wish to express our thanks to the City of Grand Rapids for the courtesy and hospitality shown the society.

2. Attention has been called to the fact that occasional adverse advertising and other forms of publicity detrimental to the fruit industry has appeared during recent years. It is, therefore, recommended that the President appoint a vigilance committee whose duty shall be to report and take suitable action to counteract and correct any such unfavorable publicity.

3. The desirability of securing publicity is apparent. We recommend that a committee be appointed to secure the co-operation of leading publications and other channels of publicity to induce the publishing of attractively written and well illustrated feature articles portraying the romance, utility and healthfulness of fruits. Also that food manufacturing industries be encouraged to incorporate in their advertising the desirability of using fruits to enhance the value of their own advertised products.

4. We endorse the resolutions on the spray residue situation as drawn and approved by a joint committee of the American Pomological Society and the Michigan State Horticultural Society which are appended and made a part of these resolutions.

5. It is recommended that President B. S. Pickett appoint a committee of such size as he deems fit to take such action as may be deemed necessary to secure the co-operation of the proper authorities in the U. S. Department that may lead to the solution of the residue problem, and also President Pickett is authorized to act as chairman ex-officio of this committee.

6. It is recommended that a committee be named to bring together commercial men, fruit growers, and experiment station workers into a closer understanding and thus advance the interests of all concerned in the fruit industry.

7. The American Pomological Society regrets exceedingly the passing of the late Charles W. Garfield, Grand Rapids' first citizen, and horticulturist, and secretary of the American Pomological Society in 1885. Men like Mr. Garfield live on. His influence and inspiration did much to build into the American Pomological Society vital life. We wish to express our sincere sympathy to Mrs. Garfield and family.

December 6, 1934.

Frank Farnsworth, Chairman.
Paul Stark
Wesley Hawley

The nominations committee of the A.P.S. presented the 1934 list of officers for re-election, so there is no change.

Now is the time to send in your annual dues. The A.P.S. needs your support. Each year the work of the society becomes of more importance to the fruit industry. Definite objectives are embodied in the resolutions. As a member of the A.P.S. you get: (1) A year's subscription to AMERICAN FRUIT GROWER, (2) Proceedings of Convention, (3) other miscellaneous communications.

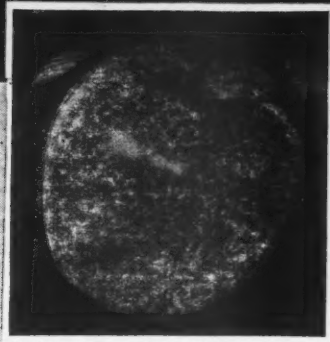
Dues are set at \$1.25 per year.

Send all remittances to H. L. Lantz, Secretary, Station A, Ames, Iowa.

H. L. Lantz

AIM FOR

.....the Money Fruit



EXTRA FANCY FRUIT BRINGS TOP PRICES

● Fruit growing profits are not determined by how many apples you grow but rather by how many extra fancy you harvest.

It's the clean, sound, full color apples that are moved at premium prices. Extra Fancy gets the call—and the growers who harvest Extra Fancy next fall reap the "extra profits."

The dependable GRASSELLI Spray and Dust Materials properly applied mean quality fruit.

Use GRASSELLI Spray Products in your spray schedule this year for best results and more "Extra Fancy."

Write us for Grasselli Growers' Guide and Spray Chart.

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Arsenate of Lead
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A standard held high for 96 years

STATE HORTICULTURAL NEWS



N. Y. Educational Exhibits

THE New York State Horticultural Society will hold its 80th annual meeting at Rochester, January 16, 17 and 18 and its eastern meeting at Kingston, January 30, 31 and February 1.

Three years ago it was decided to discontinue the competitive apple exhibit open to resident fruit grower members of the society and to put more stress on the boys' competitive fruit exhibits and on the display of commercial fruit in packages.

Any boy in New York State is eligible to this contest without membership fee. He is requested to select his own fruit, but may, if he desires, secure apples grown outside his home farm. Money prizes are given. The response of the boys has been enthusiastic.

The commercial pack exhibit organized by H. S. Duncan, State director of farm products inspection, has been a valuable educational feature since 1926. Packages of apples were selected at random by authorized state inspectors at place of storage and not opened until in the exhibit hall, where they were scored by inspectors from the New York State Department of Agriculture and Markets, and the result posted on the packages. If the pack passed grade, the names of the growers were inscribed on the honor roll. Each year finds a larger per cent of the exhibitors on the honor roll.

The commercial packers' contest was first conducted two years ago. Because of popular demand and the interest shown by growers and packers alike, it is to be continued at both Rochester and Kingston in January, 1935. This offers a chance for a man to see his own pack opened and compared with others. It is hoped this contest will have a tendency to improve the general quality of the New York State pack of apples.

The contestants send in the entry blanks at least two weeks before the date of the meeting. Only barrels, bushel baskets and crates of apples are eligible. Selections are made at random by authorized state inspectors at place of storage from lots containing not less than 25 of like variety, grade and size to those being entered. Scoring is made by inspectors from the State Department of Agriculture and Markets. Awards are made for each class of entries.

Roy P. McPherson, Sec'y,
LeRoy.

Quaker State News

THE eleventh annual horticultural week was held at the Pennsylvania State College early in December. The purpose of this horticulture week is to present to commercial and amateur growers of fruits, vegetables and ornamentals, in a non-technical manner, the principles on which some of the more important horticultural operations are based—the science back of the art. The program emphasizes one general sub-

ject each year; in 1934 it was marketing as applied to commercial fruit and vegetable production.

About 90 fruit and vegetable growers were present for the two-day course of instruction. The topics considered were: Sources of fruits and vegetables consumed in Pennsylvania and channels through which they reach the consumers; price movements in agricultural products; place of motor trucks in the marketing of fruits and vegetables; present status of motor truck marketing in Pennsylvania; what restrictions, if any, should be placed on the movement and sale of produce in trucks; apple variety trends for the export and domestic markets; farm cold storage in its relation to marketing; effect of washing fruit on its market value; means of developing and holding local markets; value of the marketing reporting service.

R. H. Sudds, Sec'y,
State College.

Calendar of Coming Fruit Meetings and Exhibits

Jan. 2-4—Maryland State Horticultural Society, Horticultural Building, University of Maryland, College Park.—A. F. Vierheller, Sec'y, College Park.

Jan. 3-4—Arkansas State Horticultural Society, University of Arkansas, Fayetteville.—Thomas Rothrock, Sec'y, Springdale.

Jan. 9-11—Idaho State Horticultural Association 40th Annual Convention, Hotel Boise, Boise.—W. H. Wicks, Sec'y, Boise.

Jan. 9-11—Massachusetts Union Agricultural Meetings, Worcester.—Wm. R. Cole, Sec'y, Amherst.

Jan. 15-17—Indiana Horticultural Society, as part of Annual Agricultural Conference Week, Purdue University, Lafayette.—Everett Wright, Sec'y, Lafayette.

Jan. 16-17—South Dakota State Horticultural Society, Vermillion.—R. W. Vance, Sec'y, Pierre.

Jan. 16-18—New York State Horticultural Society 80th annual meeting, Rochester.—Roy P. McPherson, Sec'y, Le Roy.

Jan. 23-24—Pennsylvania State Horticultural Association, Harrisburg, during Farm Show.—R. H. Sudds, Sec'y, State College.

Jan. 24—Pennsylvania Nut Growers' Association, Harrisburg, during Farm Show.—John W. Hershey, Sec'y, Downingtown.

Jan. 28-31—Ohio State Horticultural Society, Horticulture Building, Columbus, in connection with Farmers' Week at the University.—F. H. Beach, Sec'y, Columbus.

Jan. 30-Feb. 1—New York State Horticultural Society eastern meeting, Kingston.—Roy P. McPherson, Sec'y, Le Roy.

Feb. 13-14—West Virginia State Horticultural Society, Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.

West Virginia Notes

IT is a year now since the farma-loan agencies were amalgamated and reorganized and the new Farm Credit Administration began to function in such form as to hold out cheering promise to growers who had been rebuffed too frequently. The year has shown us many things.

Of first interest, since the banks almost literally slammed the door in our faces, were the production credit loans. The production loan associations in our district had trouble getting organized down to the point of actually sending out checks; and many growers narrowly averted disaster because of the delayed funds. But the checks finally came through, in time in most cases. It took four months for most of them though, from time of application.

Then we found politics entering into the organization; and joined battle on that score. Both these troubles have apparently been ironed out, with only minor casualties. The loan associations are fully organized now. They report excellent repayments and expect to cut greatly in the coming season the time required between the grower's application and the first check.

The federal production loans filled a great need, unquestionably. Many growers are well satisfied and will continue to make use of these banking facilities, since they now have (bought last year) the five per cent stock in the association and their chattel mortgages and other numerous documents all drawn up and filed with the association.

For growers who did not use this last year, much will depend on the attitude of the bankers and banks. These loosened up somewhat last spring. If they continue to loosen, they will probably get the trade. It would seem that the bankers could learn much from the federal loan set-up, if they wanted to. It's mighty nice, for instance, to establish the season's absolute requirements and then have the checks mailed out to you on schedule, instead of having to go in and coax another loan every so often. The chattel mortgage system under which the federal production loan moves could be operated just as well by private bankers, in a pinch.

The production loan system still requires excessive—and impossible—endorsement from the stockholders for a company-owned orchard. A bill was in Congress last session to rectify this, but it never got to a vote in the crush. Now we'll have to try that all over again.

We want to know, too, what happened to the federal program for taking over into Federal Land Bank all joint-stock land bank mortgages. We were earnestly and frequently told last year that this was just a few months ahead. Now it seems to have stopped; and even the bankers can't tell us why. What have the rest of you found out about these various and important things?

CARROLL R. MILLER, Sec'y,
Martinsburg.



Massachusetts Notes

MOST activities, mental and otherwise, in Massachusetts Fruit Growers' Association circles are now centered on the annual meeting coming January 9, 10 and 11. As usual the location will be Worcester, in the Municipal Auditorium.

First day's program will be more or less miscellany, including management and winter injury. Second day will be devoted entirely to pest and disease control, with Prof. P. J. Parrott of the New York State College of Agriculture, as the main speaker, and local problems handled by local men. Third day's program will be entirely marketing with Dr. R. B. Corbett of the U.S.D.A. and J. F. Welch of the American Fruit Growers as main speakers.

The annual supper will be held on Wednesday evening, January 9. The usual banquet of the Union Agricultural Meetings is to come on Thursday evening. An apple show is to be carried on with liberal prizes for plates, etc., of winter varieties.

Growers Will Replace Injured Trees

Many growers are planning to replace trees destroyed during the winter of 1933-34 but no large plantings are contemplated.

Apples are moving to market in some volume with prices holding steady. Cold storage holdings are about 60 per cent of last year, with McIntosh showing more than all others combined.

A proposal for a new farmers' market in the Boston metropolitan area is interesting fruit growers as well as all other commodity groups.

WILLIAM R. COLE, Sec'y, Amherst.

Idaho Convention

FROM present indications we are going to have, on January 9-11, at Hotel Boise, Boise, the most successful convention yet held. The State nurserymen, beekeepers and florists will meet co-operatively with our convention, and the legislature will be in session at that time. Hence, all are anticipating a very large attendance. Our exhibit division is growing rapidly and consists of district fruit displays in competition; many commercial firms handling horticultural products stage commercial displays, all of which adds greatly to the success of our association activities.

W. H. WICKS, Sec'y, Boise.

Maine State News

THE annual exhibition of the Maine State Pomological Society was held in Bangor auditorium in November. Fruit entries were in general of high quality but were notably few in number as compared with the shows of recent years. Following the outright loss of trees due to last winter's cold, the growing season was marked by an unusual string of hazards in the way of frost, drought and hail, so that the surprising thing is that so creditable a show was possible.

The pomological society re-elected president H. W. Peck, Winthrop; treasurer T. E. Chase, Buckfield; secretary E. L. White, Bowdoinham. Other officers also remain the same as last year.

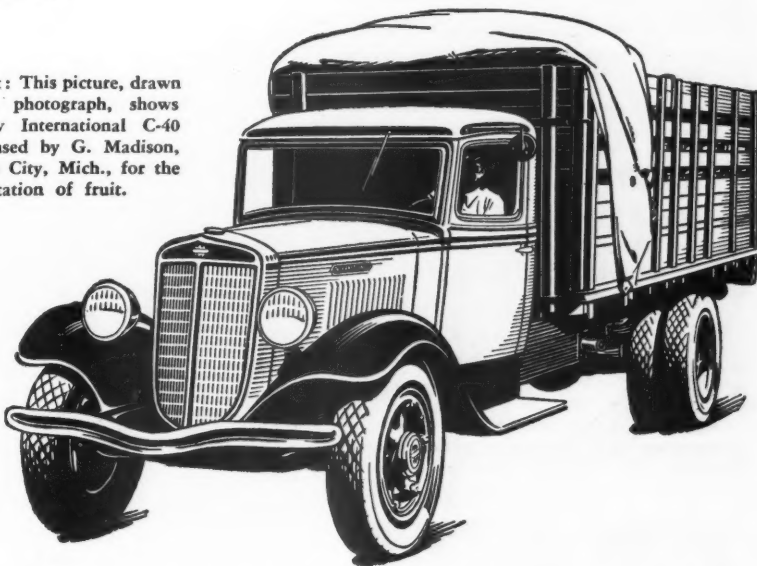
Tributes were paid to the memory of Walter M. Hardy, an orchardist of Penobscot county, and of Dr. George M. Twitchell of Auburn, one-time president of the society and a member of AMERICAN FRUIT GROWER'S 50-Year Club.

(Continued on page 21)

A NEW YEAR—

and a new and greater line of International Trucks . . . and may both bring success to the man with loads to haul.

At Right: This picture, drawn from a photograph, shows the new International C-40 Truck used by G. Madison, Traverse City, Mich., for the transportation of fruit.



The new streamlined Internationals offer you a full line for your choice. The 2-ton Model C-40 shown above is a popular truck among fruit growers who require this capacity. Other models, such as the 1 to 1½-ton Model C-20 and the 1½-ton Model C-30, are built in sizes to give you just the capacity you need . . . and maximum efficiency with it. Then there is the Half-Ton Model C-1, which is priced at \$390 for the chassis, f.o.b. factory. Equipped with cab and pick-up body, the Model C-1 makes an ideal supply and special delivery truck. Other sizes up to 10-ton. On view at 217 Company-owned branches, and dealers everywhere.

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It's Pressure That Counts Most

The pressure is under absolute automatic control when you use OSPRAYMO Sprayer. Automatic Agitator assures even distribution of the spray chemicals. An Automatic Strainer Cleaner prevents clogging and makes possible the Underneath Suction Feed.

OSPRAYMO SPRAYERS

Built in a factory devoted exclusively to the manufacture of Field and Orchard Sprayers. Machines equipped with latest improved devices, many exclusive. Ruggedly built for long hard service.

FREE 1935 Catalog shows many new models including a practical Combination Field and Orchard Sprayer. Profusely illustrated. Write today for your copy.

Field Force Pump Co.

Dept. A

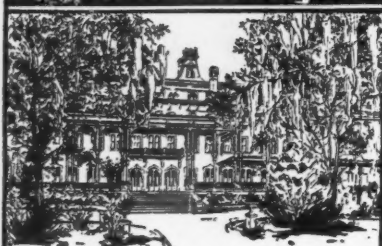
Elmira, N. Y.

Makers of
Sprayers for
More Than
53 Years.



Uniform High Pressure Guaranteed

Pine Forest Inn and Cottages



A Hotel of Distinction

(Former winter home of Presidents)

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Gardens

Nestled in a park of towering, long-leaved pines. . . . a veritable botanical garden.

Restored to its former prestige and grandeur. 200 rooms and baths. Modern in every respect. Luxuriously furnished, many open fire places, sun parlors, extensive verandas and steam heat. Excellent cuisine and exceedingly beautiful water pumped from our own wells.

Enjoy the wonderful mid-south. Excellent wild turkey, duck, and quail shooting. Fine stable of horses.

ATTRACTIVE RATES

Samuel J. Littlegreen,
General Manager.

Summerville
South Carolina

SPRAYING OFF THE RESIDUE

ARAY of hope in solving next season's spray residue problem would be a comfort months ahead of its possible use, and at least a pleasant thought for Christmas or New Year's Day. Such a hope, however, now appears to have been realized. What seems to be a brand new idea in attacking the residue problem was tested this season by Dr. C. L. Fluke, Eleanor P. Dunn, and associates of Wisconsin and appears to open up a new field of research if not a new spraying practice. At the same time it may permit fruit growers to continue the use of arsenate of lead without the danger of excessive residues. The method or methods are almost too simple to seem capable of the success the original experiments indicate are possible.

Residue Removal Simplified

A certain grade of sodium silicate for several seasons now has been used as the principal ingredient in one type of washing solution. If, however, as Dr. Fluke used it, this chemical is added to the last cover spray at the rate of one and one-fourth pounds to 50 gallons of liquid, it not only acts as a good spreader but allows the residue to weather more rapidly than where it is not used. For "border line" apple districts where washing can usually be avoided, this method of application is particularly advantageous. For sections in which heavier lead arsenate

applications must be made, the addition of the silicate will undoubtedly aid its removal to a distinct degree in the regular washing process.

Washed Before Picking

An additional modification in the use of sodium silicate involves a more radical departure than the one already stated. This plan consists of spraying with the silicate alone, just prior to harvest and then following it immediately with another spray application of pure water. Where oil sprays have been used, a neutral soap (2 to 50) is recommended in combination with the sodium silicate spray. In other words, the washing of the fruit takes place while it remains on the trees. Should one be fortunate enough to apply the silicate before a heavy rain, the "water" spray will probably not be necessary.

Experimental Tests Favorable

Preliminary tests, checked against several degrees of residue severity and in various orchards indicate a most promising future for this new method of residue removal. Fruit which originally showed residues well above the tolerance for both lead and arsenic were brought safely below it. Further experimentation will undoubtedly result in still greater efficiency for this evolutionary method which attempts to solve more completely a most baffling problem for the fruit grower.—J.T.B.

Forthcoming Farm Census of Unusual Importance

AMONG the important governmental activities undertaken primarily for the benefit of the farmer is the Census of Agriculture, which will be taken beginning January 2, 1935. The reports will be for the calendar year 1934.

The accuracy of the information procured will be directly reflected in the statistical work carried on in the farmers' behalf. Intelligent business methods must be applied in the successful operation of farms in this day and age and these methods will fail unless farmers and farm organizations have accurate knowledge of actual conditions in various sections of the country.

Fruit growers can render great aid by procuring a copy of the sample schedule from the Bureau of the Census, Washington, D.C. Study of the schedule in advance will enable them to have their answers to the questions ready for the enumerator when he calls at their home in January.

The cooperation of all farmers, including fruit growers, is necessary to the success of this census. The 1935 farm census is particularly designed to be of the greatest possible benefit to the farmers of this country.

"Carlot Shipments and Unloads of Important Fruits and Vegetables for the Calendar Years 1931 and 1932" has been issued as Statistical Bulletin 46 by the U.S.D.A., Washington, D.C.

These New Members Welcomed by Fifty-Year Club

AMERICAN FRUIT GROWER takes real pleasure in welcoming the following veterans of fruit growing as members of the Fifty-Year Club, and in adding the names of these men to the Roll of this famous organization, AMERICAN FRUIT GROWER wishes each new member more years of health, prosperity and progress in the fruit world:

Everett Bartlett, Winterport, Maine

A. Lincoln Blaisdell, Winterport, Maine

Louis Graton, Bridgewater, Mass.

H. G. Groat, Anoka, Minn.

Mrs. George Meachum, Fennville, Mich.

John W. Reed, Yellville, Ark.

Elmer Reeves, Waverly, Iowa

G. M. Titus, Waynesboro, Va.

W. B. Wade, Fennville, Mich.

G. H. York, Winterport, Maine

KINKADE GARDEN TRACTOR

and Power Lawnmowing Attachments
A Practical, Proven Power Cultivator & Plow
for Gardeners, Suburbanites, Florists,
Truckers, Nurserymen, Fruit Growers
Low Prices - Easy Terms
American Farm Machine Co.
1105 33rd Av. SE, Minneapolis, Minn.



STATE NEWS

(Continued from page 19)

A movement was launched looking toward the establishment of 150 pounds instead of 160 pounds as the barrel-basis for freight charges on apples, or else the substitution of actual car weightings.

Acting on the suggestion of a member of Maine Fruit Growers' Exchange, the society is requesting that the college and the State department of agriculture determine the number of apple trees by variety and age groups, and the probable production in the next 10 years, with a view to developing a marketing program.

J. H. WARING, Orono.

Indiana to Hold 74th Meeting

THE morning discussions on the first day of the 74th annual meeting of the Indiana Horticultural Society, at Lafayette, beginning Tuesday, January 15, will include, "Collar Rot Prevention," by R. C. Baines of Purdue; "Better Under Stocks for Orchard Trees," by J. A. McClintock, Purdue; and "Apple Scab Control for 1935," by Monroe McCown, Purdue.

The codling moth will be hit hard on Tuesday afternoon by L. F. Steiner of the U. S. Bureau of Entomology, and by G. E. Marshall of the Purdue-Bedford laboratory. Their discussions will deal largely with supplementary control measures and sanitation. Prof. C. L. Burkholder and Monroe McCown will follow with discussions on control from heavy first brood spraying only and pruning as a control aid. Demonstrations of commercial apple washing, costs per bushel, use of electric heaters, etc., will also be made by Prof. Burkholder. On Wednesday afternoon another session on the codling moth will bring out spraying experiment results, followed by a summary of the codling moth problem by Prof. J. J. Davis of Purdue.

Some other discussion topics included in the program are irrigation experiences in a few Indiana orchards by Prof. C. E. Baker, orchard soil management, small fruit problems, spray residue removal, substitutes for lead arsenate, the 1935 spray schedule, and other problems.

A joint banquet of the society and the Indiana State Vegetable Growers Association will be held on Wednesday evening. The entire program is well balanced and of sufficient interest to merit the definite interest of every fruit grower in the State.

EVERETT WRIGHT, Sec'y, Lafayette.

Florida Fruit News

THE efforts of a group of citrus growers and shippers to perfect an organization before the 1934-35 season which could guarantee its members a minimum return of from \$1 to \$1.25 per box have not materialized to date. The organization was to operate its own distributing centers in a dozen or more fruit markets. Although there is still interest in the plan, many growers doubt if it can be put into operation this season.

Since the citrus Marketing Agreement of 1933-34 was discontinued by the decree of Secretary Wallace last summer, interest has centered in the formation of a new agreement, Control Committee, etc., to handle the prorating of fruit to the markets. Two attempts have been made to have the growers sign new agreements, but so far opposition has overruled. Objection has been to various clauses in the agreement, as well as to the membership of the Control Committee provided for in

the proposed agreement. Concerted action on this situation is being made by an organization, recently effected, which represents about 60 per cent of the fruit of the State. There is some reason to believe, however, that an agreement will soon be made mandatory in spite of opposition, since the season is getting well under way.

ART STAFFORD.

Kansas Elects New Secretary

THE 68th annual meeting of the Kansas State Horticultural Society, held at Hutchinson early in December, was one of the most interesting and profitable meetings in the history of the society. The unusually large attendance consisted primarily of commercial apple growers.

The program from start to finish centered on the subject, "Control of the Codling Moth." It is recognized that the codling moth is the limiting factor in apple production in Kansas.

Dr. C. R. Cleveland, in charge of research investigations for the Standard Oil Co., discussed, "New Developments in the Use of Oils for the Control of the Codling Moth." Experiments with oil sprays carried on under Dr. Cleveland's supervision show wonderful possibilities for the control of codling moth.

It was the opinion of apple growers in attendance that if the arsenical and lead tolerance is not raised to .025 grains per pound of fruit, the apple growers of Kansas will be obliged to abandon their orchards, unless a non-poisonous method of codling moth control is developed. Discussion on this subject resulted in the sending of a request to Secretary of Agriculture Wallace that consideration be given toward modification of the lead residue tolerance for the 1935 crop, suggesting that the tolerance be raised from .019 to .025 grains lead per pound of fruit.

Officers elected for the coming biennium are: President, Sebastian Hahn, Coffeyville; vice president, Dr. R. M. Hilfinger, Winfield; treasurer, George T. Groh, Wathena; secretary, George W. Kincaide, Troy.

CHAS. A. SCOTT, Sec'y, Manhattan.

Washington State

WASHINGTON State College was host to the horticultural association meeting this year. Situated in the Palouse hills in southeastern Washington and far removed from the irrigated fruit districts of the State, many fruit growers found it impossible to attend the sessions. There was a good attendance, however, of commercial representatives, orchard superintendents, field men and public employees.

O. M. Morris, horticulturist at Pullman, presided as president of the association. Wenatchee was selected as the place of meeting in 1935. Wenatchee was also honored by having F. E. DeSelle of that city elected president for the coming year.

Pest control and spray residue occupied the outstanding place on the program. James Marshall, entomologist of the Washington Experiment Station, presented valuable information on the maintenance of deposit and coverage for codling moth control. Others who spoke on pest control were E. J. Newcomer, M. A. Yothers and Dr. R. L. Webster. All speakers on spray residue were quite emphatic that the problem is still acute and that any lowering of the present tolerance would be disastrous to many fruit growers of the State of Washington.

(Continued on page 25)



**"MAGNETIC
SPRAY"
WETTABLE
SULPHUR**

The grade of your crops depends upon the spray protection you provide. "Magnetic Spray" will give you that protection from pests and fungous diseases. It is extremely fine (better than 99% passing 325 mesh) and the purest effective wettable sulphur obtainable. Sulphur, so pure and fine—must be good.

"Magnetic Spray" readily mixes with water, remains in suspension and does not clog your spray lines. It is economical to use and always the same high quality.

*** MAGNETIC *
SUPER-ADHESIVE
DUSTING SULPHUR**

**99.8%
PURE
ECONOMICAL
ULTRA-FINE
UNIFORM**

For growers who desire a dusting sulphur that clings to the foliage and gives continuous protection, we recommend "Magnetic." It is free from fillers and its uniform quality will give you greater coverage.

NATIONAL MANUFACTURES A BRAND OF AGRICULTURAL SULPHUR FOR EVERY PURPOSE. WRITE US YOUR REQUIREMENTS.

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A Division of Stauffer Chemical Co.

CHICAGO—LOS ANGELES—JACKSONVILLE
SAN FRANCISCO—FREEPORT, TEXAS

"GROW BRITISH"

(Continued from page 12)

in wrappers stating the fact that they are an Empire product. The South African fruit growers are circularizing the English public urging them to buy their fruits since South Africa is buying English goods, even to the smaller purchases. In addition, an organization of the various producing units of the Empire is being formed to consider common production and marketing problems.

Finally, the home-grown produce, as well as that from the Dominions, is aided by the recent tariffs which have been applied to foreign produce under

the "Import Duties Act." In the case of apples a duty of approximately 50 cents a bushel has been levied. Any objection to this measure is met by the statement that such a duty should have existed for the past 50 years. In fact, it is a generally accepted opinion that in the case of horticultural produce, the present policy is a definitely established principle. It is hoped, moreover, that this tariff will induce the complete displacement of American apples by Canadian fruit, and complaints are even now being made that the tariff

is not high enough to prevent the "dumping" of American apples, and that it must therefore be raised.

In passing, let me mention one other phase of the marketing problem which I found to be of considerable interest. It appears that there is an immense disparity in the price paid to the grower of horticultural produce, and that paid to the consumer. This is due in part, as I was frequently told, to the control that the Covent Garden commission merchants exercise over the prices paid to the producer who, in general, is forced to sell to them. Practically all retailers buy their supply of fruits from these merchants, and any sales direct to the retailers, or by means of roadside markets, are not looked on with favor or condoned by Covent Garden. I was greatly impressed with the need for producers' markets such as we have in various cities in this country. Roadside markets are not particularly popular with the buying public in England for various reasons, but I was told that even if this were not the case any such innovation would meet with great opposition on the part of the vested interests centralized in Covent Garden.

Furthermore, I noted a decided tendency to sell mediocre fruit and fruit of good quality at the same, or approximately the same price. Certain of the chain stores appeared to sell the best quality fruit, apart, of course, from the superior firms which deal in luxury foods. These high quality fruits sold at the same price as the ill-assorted lot seen in the window of some impecunious greengrocer.

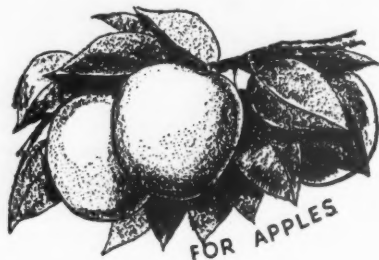
As a matter of fact, apples in England cannot be classed as an inexpensive food item. The prices paid by the consumer at the retail stores, including the chain stores, ranged from five and six cents a pound for cooking apples, such as Branley's seedling to 16 and 20 cents a pound for Cox Orange—the principal English dessert variety. The general run of Canadian and American Jonathan, McIntosh and Winesaps ranged during the winter of 1932-33 from about eight to 10 cents a pound. The sale of these varieties, even at this price, was enhanced by the fact that they were cheaper than Cox Orange which usually sold for 12 cents a pound at least. Furthermore, there were many days after Christmas when the Cox Orange was not available on many of the common retail markets.

What is the future of the American apple in England? F. Motz, American fruit representative in England, is quoted in AMERICAN FRUIT GROWER as stating that patriotism does not enter into the sale of apples. The in-



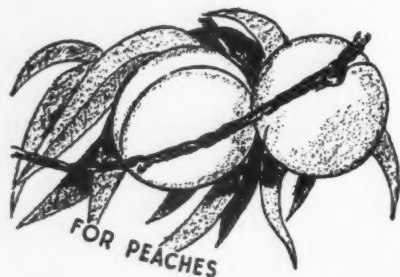
Some sulphur spray materials protect against fungus attacks perfectly, but at the same time they damage or burn the foliage, reduce fruit set and mar or russet the finish . . . A damaged leaf is a crippled leaf and crippled leaves cannot produce the necessary food to make a large crop of No. 1 apples or peaches.

The fungicide you choose must do more than protect apples and peaches against scab and brown rot—it must also save your leaves from damage.



Koppers Flotation Sulphur does both. Its ultra-microscopic fineness and freedom from caustic will protect without injury. Use it and assure yourself finer finish and more of the profitable No. 1 grade fruit. Sold in Paste and Wettable Powder Forms.

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I Have (give number).....Trees



ference is that people will buy the cheapest fruit and that American apples are cheapest. Unquestionably there are millions of people who, despite patriotic appeal, will buy the cheapest apples, but American apples are no longer cheapest. American apples during the season of 1932-33 were selling on the English stands for exactly the same price per pound as Canadian apples, which, because of the "Buy British" stimulation, would receive the preference. On the other hand, price is the deciding factor in the case of Cox Orange which, were it four cents a pound cheaper, would become preferable. When Cox Orange is produced in sufficiently large quantities to permit selling at from eight to 10 cents a pound, a large proportion of the consumers will turn away from Canadian as well as American apples. At Covent Garden I was frequently told the demand for English apples was constantly increasing. In addition responsible agricultural leaders held the opinion that the Canadian and English apples would shortly displace all other supplies.

At one time during the winter, being unable to buy American apples at a branch store of Waltons, the largest chain fruit store in London, I was informed by the salesman that in the future the policy of the company would be to purchase as few American apples as possible. Doubt-

less if American apples could be placed on the retail market at a price lower than the Canadian and English fruit, a certain amount would still find a sale. In fact, as far as America is concerned, the price brought by her apples in England is satisfactorily high, according to recent information; the chief difficulty is a matter of insufficient volume sold.

Where and how will American apples be sold in the future? It would appear that this question can be rather readily answered. By means of bargaining and trade agreements, sales should continue in countries outside the British Empire. But if this is true the obvious assumption is that we shall import goods in return. What type of goods—manufactured products, agricultural products, wines and liqueurs?

We have apparently embarked on a program of planned industry and agriculture in the United States, with imports largely excluded from the calculations. In that case the plan must be made to include the fact that we cannot hope to rely upon the maintenance of exports, either manufactured goods or agricultural produce such as we have exported in the past. Exportation of agricultural produce and of fruit in particular should be considered only as a special dispensation of providence, a fortuitous occurrence, rather than as a reliable factor in the scheme of things.

Some Pruning Principles and Practices

By T. J. TALBERT

THAT there is a definite relation between the leaf area of apple trees and the rate of growth of the tree as a whole appears to be fairly well established. Pruning in young orchards, whether light or heavy, generally has a tendency to reduce the leaf area and to that extent to be a dwarfing process. Pruning may seem to increase the vigor of growth, but this is generally due to the trees being made smaller by reducing the number of growing points. The stimulating effect of pruning is temporary, lasting only until the balance between the root and top of the tree is restored.

When two branches grow at the same rate from a common point, they tend to form a narrow, weak crotch. If one of the branches is kept pruned back rather severely, it will develop into a side branch or lateral, while the unpruned branch will become the larger and the crotch between the branches is made stronger.

The same principle of unequal cutting to regulate the growth of branches may be applied to young

trees which lean badly toward the northeast due to the prevailing winds from the southwest during the growing season.

To produce a general renewal of growth, pruning must be distributed over the entire tree. When large limbs are removed, the growth response is in the region near the pruned end, and it is usually manifested by a heavy growth of water sprouts.

If heavy pruning is given two-year-old trees at planting time, but little, if any, gain in size over yearling trees results.

During the first five to six years after transplanting, to prune as little as possible should be the general rule. Heavy pruning at this period tends to make the trees smaller and to keep them in a vegetative condition. Heavy pruning also inclines to retard the beginning of the fruiting period. If it is necessary to prune rather heavily to secure the required scaffold branches and their proper spacing, it is much better to do the work during the first two or three



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An illustrated spraying guide and catalog. Packed full of valuable information for fruit growers and row crop planters. Use the handy coupon below and send for it today.



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Written by a famous authority "Secrets of Success in Pruning" tells you how to get more fruit from your trees and vines; and more blooms from your roses, etc. Send only 10¢ to ...

This valuable 32 page book ~~free~~ with the purchase of a Snap-Cut Pruner at your hardware or seed store... Authorities everywhere say "Snap-Cut" is the best Pruner at any price...

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years after transplanting.

When trees have reached an age of five or six years, pruning for form is usually finished. After the trees come into bearing, pruning is given for the purpose of maintaining the trees in a profitable fruiting condition, and should consist largely of thinning out the thicker parts of the tree and cutting back rangy branches.

"My telephone finds the highest prices"



"People who just take a load of chickens to town have to be satisfied with what they get for them," says a farmer near Medford, Oklahoma. Instead, he uses the telephone to find out where he can sell to best advantage.

This is another of the innumerable instances where the value of the telephone can be measured in dollars and cents. But it has also a value that cannot be measured in money—that of keeping the family in constant touch with friends and relatives. And its service is priceless in time of emergency—when fire, theft, illness, accident come to your door or that of a neighbor.

**BELL
TELEPHONE
SYSTEM**



Horace M. Gilbert

The dean of Yakima Valley's fruit industry, Horace M. Gilbert, died on November 17, at the age of 72 years. Born in Geneseo, Ill., Mr. Gilbert went to the Yakima Valley of Washington nearly 39 years ago and developed the Richey & Gilbert Co., one of the major fruit concerns of the valley. He owned 800 acres of orchards, chiefly apple, and was at one time president of the Washington Horticultural Association.

To aid those who would keep posted on new publications, the New York Experimental Station, Geneva, has prepared a list of all available station bulletins and circulars.

LARGEST ORCHARD

(Continued from page 10)

Mr. Van Hoesen was not permitted to see the entire fulfillment of his ideal orchard, as he died very suddenly while attending the State legislature in Boise in 1923. The management of the orchard holdings is now in the hands of Chaney and Rowell of Nampa, Idaho.

There are several outstanding features in connection with this orchard: It is the largest orchard in the Northwest under one management. It has the only tramway *in the world* used for transportation of fruit. The two huge earth storage buildings completed in the fall of 1933 are the largest of their kind in the United States. There are 1200 acres in orchard trees on which, because of perfect air drainage, a crop failure from frost has never occurred. A woven wire fence 12 miles in length surrounds the property.

Before it was possible to achieve such an orchard undertaking, it was necessary to run a flume up to the Middle fork, a tributary to the Weiser river, where water was diverted and carried by gravitation to the Mesa tract for irrigation.

The orchard is located 3.6 miles from the Pacific and Idaho Northern railway, which serves the Weiser Valley, connecting with the Oregon-Short Line at Weiser. In order to secure the quickest transportation to the railroad shipping point loading station, it was necessary to evolve some method of quick, non-injurious transportation. Many plans were considered and rejected as impracticable, but Mr. Van Hoesen finally solved the problem to his satisfaction by having built an aerial tramway with 42 carriers, each having a capacity of six baskets or eight boxes of apples. A carrier leaves the packing house every minute and a half during the loading season, and it requires 30 minutes for it to reach the loading station at the railroad.

Six hundred and sixty baskets, enough for a carload, pass over the 3.6 miles every three hours. In bad weather, covers are placed over the carriers to protect the fruit.

Approximately 500 persons were required to harvest the 1933 crop starting in September and ending in late November. Thirteen crews picked between 15,000 and 20,000 baskets of apples each. Eighteen trucks and 150 head of horses were in use during the harvest, while the fruit was packed in 20 carloads of baskets. Approximately 172,000 baskets were shipped in for use in the harvest.

Keep your pruning saw and shears sharp. A small whetstone is useful in sharpening up the shears several times each day.

ISBELL'S NEW Seed Annual



Your Garden will produce better quality vegetables and finer flowers—at no greater cost—when you plant **ISBELL'S Northern Crown Seeds**. Write today for a copy of **Isbell's Seed Annual**—it is brimful of useful information—over 400 true-to-nature illustrations—28 pages in natural colors. Tells how and when to plant. Quotes direct-from-grower prices on flower, vegetable and field seeds. It's Free. Write today. **ISBELL SEED COMPANY, Seed Growers** 6211 Mechanic St. Jackson, Mich.

STATE NEWS

(Continued from page 21)

Considerable discussion followed the talks of Dr. S. C. Vandecaveye and F. L. Overley on orchard fertilization. Dr. Vandecaveye, of the soils department of the State College, more or less upheld the present methods of chemical field analysis used by commercial interests to determine the need of orchard soils. Inasmuch as these tests throughout the State have been showing a deficiency of potash, the results of actual orchard fertilization work presented by Prof. Overley appears to contradict this method of chemical test for practical use.

Perhaps next in importance from the standpoint of interest were the papers and discussions on orchard irrigation and cover crops. The paper by Harold P. Singleton of the Prosser Station was a very valuable contribution. Mr. Wickersham's talk on the irrigation of hillsides with porous hose was also a valuable practical contribution.

The small number of actual fruit growers present did not dim the fire of discussion that followed the talks on State codes for fruit growers. The old feud between grower and shipper made it impossible to get very far with the discussion of the subject.

Besides the set program, educational exhibits were set up in the Field House. One of the more interesting exhibits was that on soil erosion. While it was probably of more interest to wheat growers, there was a lesson to be learned by fruit growers in preventing soil destruction. The horticultural club of the college had a large part in making the educational features a success.

W. A. LUCE,
Wenatchee.

California Notes

CALIFORNIA growers of almonds are trying to save the crop of the Pacific Coast, which is being endangered now by a pending reciprocal tariff with Spain, which would admit large quantities of this nut. As Spain's production costs are very low, it would be impossible for the Pacific Coast to compete with foreign importations.

Apricot "spread" is a new fruit by-product being manufactured in California and shipped to the East in large quantities for toast, waffles, sandwiches, and cake filling.

The attendance at the Los Angeles county fair at Pomona was 500,000. It beat all records and had a big showing of all fruits. It is now a regular \$1,000,000 fair.

The control of powdery mildew, one of the most serious fungous diseases in the vineyards, has been accomplished at Davis by dusting with sulphur when the shoots are young and all through their growth. This mildew generally develops when the temperature is 75 to 95 degrees F. and does not develop at less than 50 or more than 100 degrees.

Avocados must remain on the tree long enough to produce the natural fruit oil, which gives them fine flavor and richness. If picked too soon, they will shrivel before softening. This salad fruit must be softened after picking. Only experienced avocado growers know when to pick them.

Field mice have done much damage during the colder season in gnawing at the bark and roots of the fruit and nut trees. Some growers find it profitable to hoe away from around the trunks all the old grass and weeds, put hungry cats in the field, or use hardware cloth or heavy tarred paper.

HARRY SHERMAN.

... No Sediment
in Bottom
of Tank



GROWER
preference and demand for NuREXFORM is steadily increasing. This growing popularity is due to several definite, proven facts:

NuREXFORM remains in suspension—this assures all of the Arsenate of Lead getting onto the foliage and fruit.

NO SETTLINGS

Because of the perfect suspension, none of the material settles to the bottom of the tank, to be scraped out as waste sediment.

Thus NuREXFORM is ALWAYS uniformly mixed with the water (not massed on the bottom) and the first trees sprayed are therefore protected with as strong a mixture as the last trees.

For better orchard protection, use NuREXFORM, the Improved Arsenate of Lead, in your spraying operations.

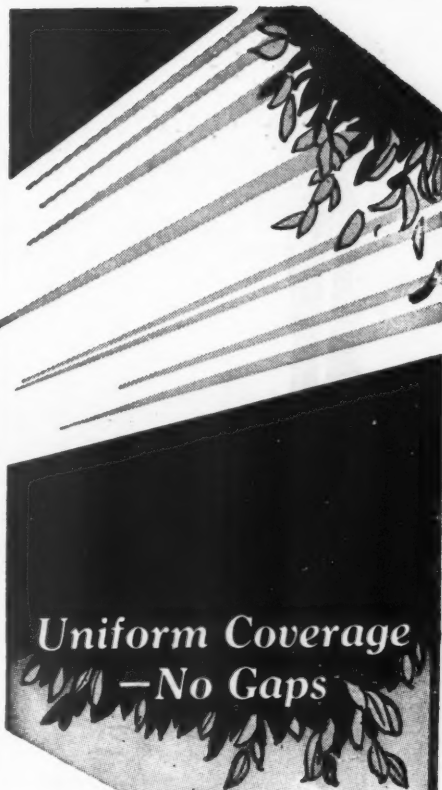


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WHAT WILL THE NEW YEAR BRING?

By MARY LEE ADAMS



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HERE he is again, the same Old New Year, so familiar and yet so fresh. Right welcome he is, announcing as he does that there are only two months to go before the first month of spring.

Unless you happen to be a citrus fruit grower, basking in January sunshine, it must at times have struck you as odd that the New Year should invariably be represented as a tender infant scantily clad, if at all, and often depicted as knocking at a snow-bound door. How long does the artist expect the little fellow to hold up under such circumstances?

And yet, since time began, he has never failed to fulfill his allotted span of life. Claiming one extra day in every four years, he offers us the assurance that he will remain with us for 12 long months, 365 days in which we may be up and doing or planning to be up and doing.

New Year is considered the proper time for making good resolutions. Surely there should be no closed season for making them, since there is such a long open season for breaking them. In the main, though only a small percentage survive, it is a commendable practice, since it is very seldom that anything worth while is accomplished without one or more good resolutions behind it.

I recall that last year we published an article advocating the earlier months of the year, the indoor passive months (so far as woman's work is ever passive) as the most suitable for making plans that are to be carried out during the active outdoor season. It is now, so to speak, more convenient to take stock: To recall what, last January, we set out to do, and to compare it with the results that have been accomplished.

Probably we hoped for too much. Hope should always exceed reasonable expectations. It sets our aim higher. It would be very interesting to know which of our women readers has made during the past year substantial improvements in the home and in living conditions, and which have earned at least a portion of the money for these improvements.

Judging by the roadside stands that sprung up this past summer like mushrooms and apparently flourished, such stands offer an attractive field of activity for the ambitious woman. The so-called curb markets

also increased in number and excellence.

Another indication of returning prosperity is that it seems easier to "place" our young people. A growing army of girls from the rural districts are making good in nearby towns and villages. There they are—behind counters, in hospitals, in banks and offices, bright eyed and efficient, returning home daily or at short intervals, proud of their earnings that take full care of their own requirements, with perhaps something over to help on the home improvements.

Life is not all "cakes and ale" or "beer and skittles" as our British friends say. This side of Paradise no one gets exactly what is wished for, and many who longed for "six of one" are dissatisfied with "half a dozen of the other." We ought to, and just have to, make the best of it.

On a round of calls one may gather this measure of prosperity. Did Mrs. Russell get that wonderful kitchenware she had set her heart on? No—but she has a splendid new range and the cooking utensils are to follow by degrees.

Has Mrs. X. managed to buy the new rug for the sitting room? No—but they have installed electricity, lights, heat and cooking.

Did Mrs. Mercer succeed in having the back porch painted? No—but they have a new car.

Taken all in all that's a gratifying showing. Progress has been made, and in each case, though the housewife did not get just what she wanted, she got something even more desirable.

Like the well-known frog that slipped back two feet every time he jumped up three in his effort to get out of the well, the average fruit growers are step by step improving their homes and their living conditions. Inside the house and out, the standard is noticeably higher every year or so.

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NEW RUBY GRAPEFRUIT

(Continued from page 7)

an account of the finding of another mutant down in Florida some 20 years ago, because it was from this Florida mutant, a mutation in itself, that the Texas mutant was obtained.

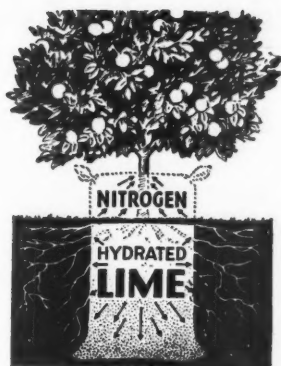
In 1913, S. H. Collins discovered in the grove of W. B. Thompson, near Oneco, Fla., a pink-fleshed grapefruit on a Marsh Seedless tree. Normally, the Marsh Seedless variety is yellow fleshed and contains from none to six seeds. This mutation is known to commerce today as the Marsh Pink, or the Thompson Pink, the latter name being the most appropriate. After its discovery, it was propagated commercially by the Reasoner Brother's Nursery of Oneco, who secured the rights of budding and propagating.

In the summer of 1925, Mr. Henninger, of Texas, and about whom this story is also to deal, purchased one of these Florida trees for the sum of \$10; and in 1926, he bought 15 more, paying \$5 apiece for them. It was from one of these trees, planted in 1926, that the mutation, which will be known to the citrus industry as the HENNINGER RUBY grapefruit, has appeared.

During the season of 1928-29, the first Henninger Ruby grapefruit appeared. Mr. Henninger, in his alert and businesslike way, has the custom of placing all the fruit from each tree in a pile alongside, so that it can be examined for quality, yield, size, etc. In taking up the fruit from one particular tree, he noticed a single fruit of the Thompson Pink variety that was strikingly different from the rest. It had a definite pink blush on the outside of the rind, unlike the rest, which, although pink inside, shows no color on the exterior. Perplexed and doubtful, but still suspecting a "sport," Mr. Henninger resolved to carefully watch the fruit on that tree the next season so he could determine the exact limb, branch or twig upon which this sport would be borne.

Before maturity time the next season, Mr. Henninger, while examining the tree, came upon a single branch bearing five fruits showing the "blushing" character: he was so eager to find. Here, then, was the mutation for which the citrus industry was hoping since the discovery of the pink fleshed mutation in Florida—a seedless grapefruit of the pink variety with the color blushing through to the outside. Moreover, the color on the inside seemed to be a more vivid pink than the color of the other fruit from the parent tree.

Being a nurseryman, Mr. Hen-



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ninger set to work to propagate this new sport to test it further. He cut buds from the wood beyond the mutation area. The progeny of which there were several hundred, produced in every characteristic fruit exactly like the parent from which they came. He then decided that he would carry the progeny studies still further, and by budding from the first generation progeny, carried on into a second which also produced fruit truly characteristic of the originally found mutation. Mr. Henninger then applied for a plant patent and early in 1933 secured the first citrus variety patent issued by the U. S. Government. During the entire process of propagation, the writer has been a constant observer.

Mr. Henninger calls his new variety the Henninger Ruby on account of its deep color. He fully describes it as follows: "Has a deeper colored flesh than the Thompson Seedless grapefruit from whence it came, with a deep ruby red border, coloring through to the exterior of the rind, which is colored similar to the well-colored Foster Pink. In the case of the new grapefruit, however, the color appears to hold up longer, and make a much better appearance than

either the Foster or the Thompson Pink."

The particular salient feature about this new variety of grapefruit is its outside color. Truly, it is colored on the inside also and has no, or few, seeds. But it must be remembered that the American housewife buys with her eyes. She cannot see into the interior. Therefore, when she observes this beautiful golden yellow grapefruit with a vivid pink blush upon its rind, she is sure to select it out from a group of other grapefruit varieties.

The economic importance of this new variety of grapefruit to the Texas citrus belt can hardly be overestimated. First the old seeded varieties were superseded by the Marsh Seedless. It was found that the trade did not desire fruits with seeds in them. Hope for the seeded varieties was revived when the Foster Pink, another bud sport, made its appearance. Here was a variety while pink-fleshed and with a blush on the rind, had the undesirable feature of containing seeds. And now comes the Henninger Ruby, however, which is pink-fleshed, but has no—or few—seeds, and the attractive pink blush on the rind.

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Varieties of Nut Trees For Northern Planting

THE development of a new horticultural industry is dependent chiefly on the development of varieties so superior to the wild types that the culture of these varieties becomes profitable. Unless very superior sorts are available, the possibility of success in growing such new crops is remote, especially with plants that grow abundantly in the wild in many parts of the country.

The nut industry in the northern states is in the early stages of development and the question of varieties is of major importance. Systematic searching by enthusiastic amateurs and prize contests have brought to light a host of more or less superior forms which are now undergoing trial in various experimental plantings. Only a few of these will become widely propagated standard varieties. In the words of the prophet, "Many are called but few chosen." In this case, C. A. Reed of the U.S.D.A. is the prophet and in a paper presented before the 1934 meeting of the Northern Nut Growers' Association at Battle Creek, Mich., the merits of the most promising of the newer nut varieties are related. The varieties discussed therein are intended for the milder portions of New England, New York, Michigan, Wisconsin, Minnesota, South Dakota, the Niagara Peninsula in Ontario, and those portions of Ontario adjacent to Lakes Erie and St. Clair.

Hardiness Important Factor

The varieties described by Mr. Reed have nearly all originated in this region and have demonstrated their hardiness and ability to mature good crops of well filled, good quality nuts of superior cracking quality. These varieties are not generally available from nut nurseries, but scions may be had in some cases from nurseries, amateurs or from the owners of the original trees. A few are being propagated by nurserymen. It is probable that some of these nut nurseries might be induced to raise grafted trees on contract.

In Mr. Reed's list of black walnuts for the northern zone, Michigan has contributed the following sorts: Adams, Allen, Beck, Doyle, Germaine, Harris and Wiard. The Lamb black walnut, also of Michigan origin, is being propagated from a tree of which the wood had a highly figured grain. Cresco, Edras and Grundy are of Iowa origin, while New York has Alley, Hilton and Tasterite to its credit. Bloss from northern Indiana, Huber from Wisconsin and Bruer from Minnesota complete the list of black walnuts suggested by Mr. Reed for the north.

The list of hickories totals 17, with Iowa contributing the Cedar Rapids, Creager, Dennis, Fairbanks and Sande. From Michigan Drew, Green, Mann and Miller have been obtained. Wisconsin has furnished Huber and Westphal, and New York Emerick and Laney. From Illinois comes the Anthony, from Massachusetts the Comins and from northern Indiana the Swaim.

Good butternuts are few but Michigan is the home of Olverson, Love and Luther; Wisconsin of Irvine; Connecticut of Deming, and Massachusetts of Sherman.

Space does not permit descriptions of these varieties at present, but the full descriptions will appear in the proceedings of the Battle Creek meeting of the Northern Nut Growers' Association.

G. L. SLATE, Sec'y,
Geneva, N.Y.

Golden Delicious Survey Shows Public Preference

By L. L. ANDERSON, President,
Golden Delicious Apple Growers' Association

FROM every state in the Union, down from Canada and up from old Mexico, recently came, as a result of a careful survey, remarkable reports about a remarkable apple. These glowing reports about the Golden Delicious apple did not come as a surprise to the many members of the Golden Delicious Apple Growers' Association. In fact, it was the Association which had ordered the survey, knowing full well it would officially confirm the enthusiastic experiences and convictions of each member.

Individual members of the Association not only read the report with unconcealed satisfaction, but showed it to their neighbor orchardists, to members of their state horticultural societies, in fact, to anyone and everyone interested in commercial apple growing.

The report showed that the Golden Delicious brings highest prices in the markets; that it is hardy in tree and bud; that it bears younger than other apples; that it bears the most bushels annually; that it bears good crops in spite of late frosts and keeps crisp and juicy all winter.

The point, however, that pleases each Association member most, is that individual experiences, as well as the official survey, show that this amazing apple is the biggest money-maker, year in and year out, of any variety now grown.

Of equal or greater importance to the other points covered, the survey found that the Golden Delicious led competing apples in popularity with the buying public. It was found that even in some of the markets where yellow apples were formerly not in great demand, Golden Delicious had caused a reversal of buying tendencies and the public now associates the golden color of the Golden Delicious with highest quality and late keeping—and is willing to pay a premium price for it.

The report also includes, for the benefit of other growers, some of the experiences which Association members have had in handling Golden Delicious in order to place them on the market in prime condition and thereby obtain the highest prices.

SPRAYING: This variety, being resistant to scab, can be successfully raised with milder forms of fungicides, which also give better, smoother finish to the fruit.

TIME TO PICK: During the summer months, Golden Delicious has almost a grass-green color, and as the ripening season approaches, this green color changes to a lighter shade, becoming distinctly whitish green just before maturity. At this stage, Grimes Golden may be picked and will yellow in storage. But Golden Delicious should be allowed to remain on the tree until the greenish color changes to a whitish yellow. At this yellow stage, Golden Delicious is still hard and hangs well to the tree. This is the stage which will allow its full delicious flavor and best keeping.

PICKING AND HANDLING: Since the Golden Delicious is an exceedingly high quality apple, care should be taken in picking and handling. Picking in half-bushel baskets or in one of the picking type baskets or bags is desirable, since there is less bruising than in the sack type of bag. It is a high price apple and deserves your best care.

PACKING AND CONTAINERS: The fruit should be hauled to the packing house as fast as it is picked and should be promptly packed and placed in storage. Tub baskets have been used, generally, and are very satisfactory. Some growers have also used corrugated paper cartons and have secured extra high prices from special trade.

GRADING: No grower will be able to produce all extra fancy apples, nor all number one fruit, and careful grading to separate the different grades is absolutely necessary.—Adv.

Rotation Crops for Strawberries

(Continued from page 11)

land as in Oregon and depend on such things as climatic differences, insects, diseases, soil fertility, and soil acidity relations. Climatic differences affect not only the crops which can be raised in the rotation but the insects, diseases, soil fertility, and soil acidity, which in turn determine the crops that can be grown successfully.

The most widely known factor which affects the choice of a crop to be grown before the strawberry is the presence of white grubs, the larvae of the May beetles. These insects are abundant in grass sod land in the northern and eastern States and may be abundant in grass sod in the southern and western States. When strawberries are planted after sod, the white grubs complete their development, feed on the strawberry roots, and go down the row from plant to plant eating off the roots and killing the strawberries. Where white grubs are a serious pest, strawberries should follow tilled crops. In California, however, where the grubs are not abundant, sodland or grain stubble may be the best land for berries.

A second insect that is important in affecting crop rotation is the strawberry root aphid. It sucks its food from the strawberry roots, weakening or killing the plants. The ants which tend the aphid also injure the plants by making tunnels around the crowns and down along the roots, causing them to dry out. Root aphid injury is most serious on sandy soils along the Atlantic coast; in some years thousands of acres die out from this cause. Growers have found losses much greater when the strawberry follows corn, weeds, and grass, apparently because ants are usually abundant in corn fields and grass lands. The ants carry the aphids from plant to plant. Where aphids are often a serious pest, growers have found sweet potatoes one of the best crops to precede strawberries, apparently because there are so few ants and aphids present in sweet potato fields. Tobacco, potatoes, and other hoed vegetable crops are also preferred for the rotation for the same reason.

In the Pacific Northwest the root weevil is a serious insect enemy of the strawberry. Cultivated crop land is to be preferred, although the use of poison bait is so essential, so commonly practiced, and so effective that less attention need be given to the pres-

ence of this insect on other crops in the rotation than formerly.

In western Oregon and Washington, Dr. S. M. Zeller has found that Rhizoctonia root rot is one of the most serious diseases of the strawberry. This disease is caused by a common soil fungus and is especially serious in cold, wet land. It is also found on almost all the braken ferns in the Northwest and is a serious disease of potatoes, tomatoes, and many other crops. Clean planting stock, well drained farm land which has been under cultivation for many years, and rotations following grass (if white grubs are not serious) or grain but not for two to three years after potatoes, tomatoes, and strawberries, are important considerations in the control of this disease.

In California, Dr. H. E. Thomas has found that the Verticillium wilt, which causes the blue stem wilt of raspberries and is serious there on the tomato, is also a serious disease of the strawberry, often killing out whole fields if planted after tomatoes. In part, because of this disease, strawberry growers often prefer fallow or new land, or land that has been used for wheat. Land which has been in potatoes, beets, cucumber, eggplant, melon, peppers, and brambles, as well as tomatoes, should be avoided.

In Michigan, Prof. and Mrs. F. C. Strong discovered two black root fungi (*Leptosphaeria coniothyrium* and *Pezizella lythri*) causing serious losses of strawberries. Both fungi were widely distributed in strawberry fields and were common on many other plants. They recommend that where this black root disease is serious, strawberries should not be planted on land where they had been recently grown. Both fungi cause diseases of raspberries and one also causes a serious disease of the apple. Though best rotations for control of these diseases are not yet known, the necessity of a long rotation is indicated.

In the southern States the root-knot nematode may be a limiting factor in strawberry growing and the crops preceding strawberries should be resistant to this trouble. In other regions it has been shown that still other diseases cause losses to strawberries and it is certain that the resistance of the other crops in the rotation to the diseases are important in growing berries.

(To be concluded next month)

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PLANT PATENTS

(Continued from page 9)

form should be included so that they can be referred to in case of litigation.

The description is reinforced by the drawings which in the case of plant patents may be in color (and if in color should be in duplicate). These are made in a prescribed size and there are certain rules covering their preparation which must be complied with. Colored photographs of the new plant forms are apparently acceptable to the Patent Office, and since such photographs give a more faithful rendering of the plant than freehand drawings, their use is to be encouraged, because from the point of view of the plant inventor the more diagnostic characteristics he can incorporate, the greater the chances to prove that his new variety is different from existing varieties.

After the patent application has been duly sworn to before the proper authorities, it is transmitted with the fee to the Commissioner of Patents at Washington. After the application has been examined by the Patent Office the patentee is informed whether he has been granted a patent or whether his application has been "rejected." Usually the application is rejected in the first action for one reason or another, and one need neither be alarmed nor discouraged by this formidable word. The rejection of the patent is accompanied by a detailed statement of the various reasons for which it has been rejected. Thus it may be alleged by the Patent Office that insufficient evidence of the novelty of the new form has been submitted. It may be alleged that asexual reproduction of the new form has not been substantiated, etc.

The patentee then has six months to make rejoinders covering the various items rejected. These are then considered by the Patent Office and the patent is either granted or again rejected on the same or different grounds. If a second rejection occurs the patentee again has a six-months' breathing spell to prepare a rejoinder. Many months may elapse between the application for a patent and the time that a patent finally issues or is finally rejected. If the patent is not allowed appeal may be taken to the Court of Customs and Patent Appeals which has jurisdiction over such mat-

ters, and may reverse the decision of the Patent Office and direct the issuance of a patent, should the grounds for rejection be considered inadequate by the Court.

The procedure of issuing a plant patent differs in one very important respect from that obtaining with other kinds of patents, as it involves the co-operation of two separate departments of the Government. The Patent Office is, of course, charged with the issuance of all patents, including plant patents, but it may request from the Department of Agriculture information regarding the novelty of the new forms claimed as patentable varieties of plants and on other relevant matters.

Eventually the applicant is either notified that a patent has been issued or that his application has been finally rejected. In the event that the patent application is accepted, a final fee of \$30 is required to be paid within six months of the notice. The amount of attorney's fees is variable. Subsequent to this the patent is issued. At the time of issue it is published in the *Patent Office Gazette* of the U. S. Patent Office. Copies of the patent are also printed and may be purchased on payment of a fee of 10 cents.

This patent gives the patentee the sole right to "make, use or vend" the subject matter of the patent for a period of 17 years.

As the laws now stand, the name of the new variety shall not appear in the patent specification. In the case of the first plant patent the name of the variety ("New Dawn") slipped through in the patent specification, but in all of the later specifications the name given the new variety has been suppressed. In the case of plant varieties the linking of the new form and the name it has been given is a matter of paramount importance. The elaborate mystery regarding names which is the policy of the Patent Office adds to the confusion as far as plant breeders are concerned and proportionally reduces the value of the law.

Many more points with regard to the details of the new law have yet to be worked out. Thus a number of plant patents have been issued to joint inventors, one of the claimants having found the new form or produced it by hybridization—the other having asexually reproduced it, etc. This use of the joint inventive faculty is entirely at variance with that existing in patent law heretofore and it seems quite likely that the patents have been allowed through a misunderstanding on the part of the Patent Office of the botanical factors involved.

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